

JAN 22 1960

VOLUME 44 • NUMBER 252

January 1960

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Bulletin

OF THE NATIONAL ASSOCIATION

OF SECONDARY-SCHOOL PRINCIPALS



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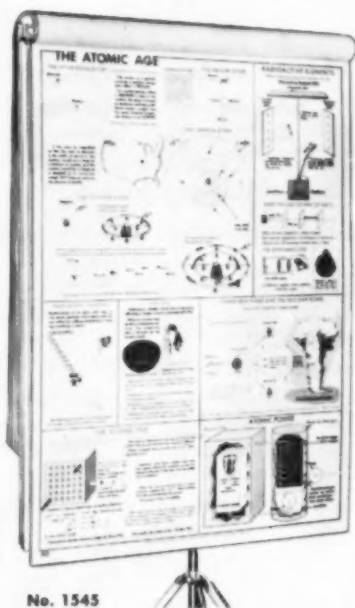
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ELLSWORTH TOMPKINS

Was named Executive Secretary-Designate of the National Association of Secondary-School Principals by the Executive Committee of the Association in May 1958, and assumed the duties of the Executive Secretary on January 1, 1960. Previous positions held include:

- 1955-59 Associate Secretary, National Association of Secondary-School Principals
- 1951- Editor, *The Spotlight*: NASSP and U. S. Office of Education
- 1955- Editor-in-Chief of *Clearing House*, a national professional education magazine
- 1957- Member, Commission on Accreditation of Service Experience
- 1956 Education Adviser, 90-day tour of United States schools and colleges by General Directors of Turkish Ministry of Education
- 1955-56 U. S. Delegate to First Inter-American Seminar on Secondary Education, Santiago, Chile
- 1953-54 Education Consultant to Ford Foundation to arrange Turkish Experimental School Project
- 1952-53 Adviser on secondary education to Ministry of Education in Turkey, Ankara
- 1947- Publications—4 books or yearbooks, 83 bulletins, and magazine articles on various educational subjects
- 1947- Consultant and speaker at 53 state and regional education meetings
- 1947-55 Specialist in Secondary School Administration, and later Chief, Secondary-Schools Section, U. S. Office of Education, Washington 25, D. C.
- 1945-47 President, Board of Educational Directors, Fairleigh Dickinson College, Rutherford, New Jersey
- 1940-47 Principal, Eastside High School, Paterson, New Jersey
- 1932-40 Vice-Principal, Eastside High School, Paterson, New Jersey
- 1926-33 Director, WODA Free High School of the Air, Paterson, New Jersey
- 1926-32 Teacher of English and Speech, Eastside High School, Paterson, New Jersey
- 1924-26 Presidential announcer, educational consultant, and program assistant, WJZ, New York, and WRC, Washington, D. C.

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PROPOSED AMENDMENTS TO NASSP CONSTITUTION

THE following amendments to the Constitution of the National Association of Secondary-School Principals will be presented for action at the Annual Business Meeting on March 1, 1960, at the 44th Annual Convention in Portland, Oregon. TO HAVE THE NASSP CONSTITUTION IN ACCORD WITH THE NEW MEMBERSHIP REQUIREMENTS OF THE NATIONAL EDUCATION ASSOCIATION FOR MEMBERS OF DEPARTMENTS:

Add to Article III, Section 7

All members holding elective offices shall also have active membership in the National Education Association.

Add to Article III, Section 8

It will encourage all members to have membership in the National Education Association.

TO CLARIFY SEVERAL PARTS OF THE NASSP CONSTITUTION

In Article IV, Section 4, Region 7

Add the word Alaska after Nevada

In Article IV, Section 6

Add Associate and to last sentence to read as follows: "The Associate and Assistant Secretaries shall be elected by the Executive Committee upon recommendation by the Executive Secretary; their duties and compensation shall be determined by the Executive Committee."

In Article IV, Section 7

Add as item "h" the following: (h) shall hold such regular and special meetings, as necessary, to carry on the work of the Association.

TO PROVIDE FOR FEDERAL TAX EXEMPTION FOR THE ASSOCIATION AND TO PROVIDE TAX-EXEMPT STATUS TO ALL AGENCIES, PERSONS, ORGANIZATIONS, OR FOUNDATIONS THAT MAY DESIRE TO MAKE GRANTS TO THE ASSOCIATION

Article VII—"Finance"

Identify present paragraph as Section 1

ADD AS SECTION 2: No part of any income, revenue, and grant of or to the Association shall insure to the financial benefit of any member, officer, or any private individual (except that reasonable compensation may be paid for services rendered in connection with one or more of its purposes); and no member, officer, or any private individual shall be entitled to share in the distribution of any of the assets of the Association on its dissolution or liquidation. In the event of such dissolution or liquidation, the assets of the Association, after payment of debts and obligations, shall be transferred to the National Education Association of the United States for its charitable and educational purposes, provided the said National Education Association is then exempt from federal income taxes as a charitable and/or educational organization. If the said National Education Association is not then so exempt, the net assets, as aforesaid, shall be transferred to an organization with federal tax exemption for charitable and educational uses and purposes similar to those of this Association which exempt organization shall be designated by the final Executive Committee of the Association.

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Prepared for

The Commission on the Experimental Study
of the Utilization of the Staff
in the Secondary School

Appointed by

The National Association of Secondary-School Principals,
a Department of the National Education Association

Supported by

The Fund for the Advancement of Education
The Ford Foundation

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The Bulletin

OF THE NATIONAL ASSOCIATION OF Secondary-School Principals

This Association does not necessarily endorse any individual, group, or organization or the opinions, ideas, proposals, or judgments expressed at the annual convention of the Association, and/or published in THE BULLETIN.

TABLE OF CONTENTS

Chapter	Part I Introduction	Page
I. The Third Year of the NASSP Commission on Staff Utilization.....	L. S. Michael J. L. Trump.....	7 9
II. An Appraisal of NASSP's Staff Utilization Study at the Close of Its First Two Years.....	B. R. Dillman.....	13
	Part II	
	Studies Completed at End of 1958-59 School Year	19
III. Three Years of Experimentation in a Small School at Beecher, Illinois.....	Edith Grotberg Winifred Metzler Alfred Pirtle George Weigel.....	21
IV. Development of Independent Study Skills in American History in Fairfield, Illinois.....	M. S. Thacker H. S. Largent G. G. Riley.....	34
V. Springfield, Illinois, Teachers and Students Study Guidance Services.....	R. D. Furry.....	43
VI. An Experiment in Staff Utilization with Talented Students in a Small High School During the Summer Months at Newark, Illinois.....	R. H. Quensel.....	49
VII. Final Report on the Westside High School Teaching-by-Tape Project.....	Mrs. R. E. Gibson.....	56

(Continued on next pages)

THE CONTENTS OF THIS BULLETIN ARE LISTED IN "EDUCATION INDEX"

Issued Monthly, September to May Inclusive

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Chapter	Page
VIII. Some Conclusions Drawn from the Snyder, Texas, Project.....	W. O. Nesbitt P. O. Johnson..... 63

Part III

Studies Continuing During 1958-59

IX. An Extensive Study of Team Teaching and Schedule Modification in Jefferson County, Colorado, School District R-1.....	R. H. Johnson M. D. Lobb L. G. Swenson..... 79
X. The St. Paul, Minnesota, Teacher Recruitment Project Accounts for the Second Year of College and Laboratory Experiences.....	K. R. Doane W. J. Scanlan..... 94
XI. The High School Principal in Newton, Massachusetts, Reacts to Re-deployment.....	Harold Howe II..... 122
XII. Utah Staff Utilization Studies.....	M. F. Noall..... 139
XIII. Core Curriculum at Weber County, Utah.....	M. F. Noall T. H. Ball..... 141
XIV. Staff Utilization Through Language Arts Reorganization, Hurricane, Utah.....	M. F. Noall Maurice Nuttall..... 148
XV. Team Teaching at Roosevelt Junior High School, Duchesne County, Utah.....	M. F. Noall Lawrell Jensen..... 156
XVI. Team Teaching at the Wahlquist Junior High School, Weber County, Utah.....	M. F. Noall Gale Rose..... 164
XVII. Paraprofessional Helpers in a Language Arts Program at the Logan City High School, Utah.....	M. F. Noall Parry Wilson..... 172

Part IV

Studies Started in 1958-59

XVIII. Team Teaching in San Diego—The First Year.....	L. L. Bloemenshine..... 181
XIX. Educational Broadcasting and Staff Utilization in South Bend: An Experiment in Group Guidance.....	K. W. Reber..... 197
XX. The Illinois Staff Utilization Studies.....	F. P. Barnes..... 303
XXI. Fourteen Staff Utilization Studies in Township High School District 214, Arlington Heights, Illinois.....	Valjean Cashen E. E. Oliver A. L. Kulieke H. L. Slickemyer..... 211
XXII. Use of Tapes, Language Laboratory, and Teaching Teams at the J. Sterling Morton High School and Junior College.....	W. L. Cooper..... 233
XXIII. Glenbrook Reports on Four Experiments on Utilization of Staff.....	W. G. Bovinet..... 244
XXIV. Summer Staff-Utilization Workshop Enables Lakeview Junior-Senior High School Teachers To Plan Studies.....	D. W. Beggs..... 254
XXV. English and Science Studies in Mattoon Senior High.....	H. A. Clawson..... 257
XXVI. Curriculum Enrichment in a Rural County Unit School System Through the Use of Material Aids to In- struction, Pope County, Illinois.....	J. H. Hobbs..... 264

(Continued on next page)

<i>Chapter</i>	<i>Page</i>
XXVII. Team Teaching and Use of Recorders in Taylorville Senior High School	William Hurley Aldo Ceresa Ada Songer Louise Pacotti Aileen Clawson Byron Chrisman 268
XXVIII. University of Chicago Laboratory School Freshman Project Involves Team Teaching, New Faculty Position, and Regrouping of Students	R. A. Larmee Robert Ohm 275
XXIX. Five Projects Designed To Increase Students' Inde- pendence in Learning, University of Illinois High School	D. M. Jackson P. E. Changnon R. K. Brown Paul Westmeyer W. L. Shoemaker 290
XXX. Grouping, Acceleration, and Teacher Aides Experiments in Urbana Secondary Schools	R. H. Braun James Steffensen 305
XXXI. Summer Workshops on Staff Utilization	J. L. Trump V. W. Gillenwater C. D. Rowley 316

Part V

Other Efforts and Conclusion 333

XXXII. A Study of the Classroom Use of Secretarial Help in the Public Schools of Davidson County, Tennessee	D. T. Turney 334
XXXIII. Plans for Increased Opportunities in Science Is Con- tinued at Alexander Ramsey High School, Rose- ville, Minnesota	Curtis Johnson 341
XXXIV. Completing the Commission's Staff Utilization Studies	J. L. Trump 344
Book Column	347
News Notes	377

Commission Director's Office Moved to Washington, D. C.

EFFECTIVE January 1, 1960, the office of the Director of the Commission was moved from 200 Gregory Hall, Urbana, Illinois, to the office of the National Association of Secondary-School Principals, 1201 Sixteenth Street, N. W., Washington 6, D. C. The telephone number is ADams 4-4855, Ext. 423.

The change of office is occasioned by the change in professional positions of the Director of the Commission, J. Lloyd Trump. Dr. Trump, who had served as Professor of Education at the University of Illinois for the past twelve years subsequent to teaching and administrative experiences in schools in Indiana and Illinois, accepted a position as an Associate Secretary of the National Association of Secondary-School Principals effective January 1, 1960. He will continue to serve as Director of the Commission on the Experimental Study of the Utilization of the Staff in the Secondary School until the project is completed in 1960.

Communications regarding Commission activities should be addressed either to a member of the Commission as shown opposite the Table of Contents of this publication or to one of the following: J. Lloyd Trump, National Association of Secondary-School Principals, 1201 Sixteenth Street, N. W., Washington 6, D. C.; Robert B. Moore, P. O. Box 104, Stanford, California; or Lee Pigott, 1176 West Marietta Street, Decatur, Illinois.

Part I

Introduction



The number of students in a group should be governed by the nature and purpose of the activity. When it is necessary to establish close personal contact with pupils, teachers must meet them individually or a few at a time.—Jefferson County (Colorado) Public Schools



Larger groups serve several functions in team-teaching. They permit many students to benefit from the lectures of a selected teacher; they allow a teacher to make one dynamic presentation rather than to try to sustain energy and vitality for several; and they make it possible to gain preparation and planning time for the staff. Here a teacher is conducting a class of more than one hundred pupils. Use is being made of the overhead projector and microphone. The room is double-sized and can be divided into two classrooms when necessary.—Jefferson County (Colorado) Public Schools

The Third Year of the NASSP Commission on Staff Utilization

LLOYD S. MICHAEL

J. LLOYD TRUMP

FIVE major developments characterized Commission activities during 1959: (1) additional projects were started and cooperation was continued with other studies; (2) ideas about the secondary school of the future were further evolved; (3) different methods of reporting projects and ideas were utilized; (4) several state principals' association workshops were held on an experimental basis; (5) the staff was expanded by the appointment, on a part-time basis, of two associate directors. The foregoing highlights were in addition to an ever increasing amount of correspondence and other routine activities as well as numerous discussions with various individuals and groups.

ADDITIONAL PROJECTS

Illinois Staff Utilization Studies

Fourteen schools in Illinois started a cooperative project under the sponsorship of the Illinois Association of Secondary-School Principals. These experimental studies described in subsequent chapters of this report represent a variety of approaches to improved staff utilization. Supervision of the studies was partially under the direction of staff members of the Illinois Curriculum Program. Special emphasis was given to training teachers in experimental procedures. The cooperative aspects of the program are described in Chapter XX by Dr. Fred Barnes, Director of the Illinois Curriculum Program.

San Diego, California, and South Bend, Indiana

Several schools in each of these two systems were involved in staff utilization studies. The emphasis in San Diego as described in Chapter XVIII is on team teaching, redeployment of students, and the use of teacher-trainees as teaching assistants. The South Bend project reported in Chapter XIX represents an effort to distribute guidance materials *via* tapes and FM radio.

Lloyd S. Michael, Principal of Evanston Township High School, Evanston, Illinois, is Chairman, and J. Lloyd Trump, formerly Professor of Education, University of Illinois, is Director of the National Association of Secondary-School Principals' Commission on the Experimental Study of the Utilization of the Staff in the Secondary School, 1201 Sixteenth Street, N. W., Washington 6, D. C.

Interest and cooperation

In addition to examining a number of proposals from other school systems for staff utilization studies, the Commission maintained contact with studies sponsored by other groups. Chief among these were the studies in small schools known as the Upper Catskill Project in Small School Design and the Rocky Mountain Area Project for Small High Schools. Some results of one activity in staff utilization associated with George Peabody College for Teachers are described by David Turney in Chapter XXXII of this volume. Members of the Commission constantly receive information about independent studies being conducted by school systems.

A number of doctoral dissertations in the area of staff utilization also have been reported. One of these, summarized in Chapter II, conducted by Beryl Dillman, is an evaluation of the first two years of the Commission program.

IDEAS ABOUT SECONDARY SCHOOLS OF THE FUTURE

Readers of this BULLETIN as well as the NASSP BULLETINS of January 1958 and January 1959 will be impressed with the wide variety of approaches to improved staff utilization being attempted in different schools. These studies have dealt with such matters as different patterns of class organization and scheduling, team teaching, use of teacher assistants, use of technological aids to instruction, and curriculum improvement. The statement has repeatedly been made by the Commission that no single pattern of improved staff utilization has been sponsored. These have been grass root studies with consultant help furnished mainly by nearby higher institutions and representatives of state departments of public instruction.

Members of the Commission have analyzed carefully the results of experimentation which have involved more than one hundred junior and senior high schools widely distributed throughout the United States. None of these studies has involved all teachers in a school or all subject areas. As time has gone on, however, the Commission has seen ever more clearly the possibilities in these studies for further improvement in the quality of secondary education. Ideas have evolved about a secondary school of the future which would be different in many respects from those now existing.

Images of the Future

Growing out of Commission discussions and experiences with experimental projects, a publication, *Images of the Future: A New Approach to the Secondary School*, was prepared in an effort to stimulate thought and discussion among faculty groups and interested laymen. At the time of writing this chapter, more than 100,000 copies of this 44-page booklet have been distributed in every state of the union and in many foreign countries. The wide demand for this publication and the many favorable comments which have been received indicate considerable impact on the

thinking of individuals and groups. A number of eminent architects, for example, have indicated interest in designing school facilities which might meet educational specifications similar to those described in the booklet.

DIFFERENT METHODS OF REPORTING

The Printed Page

Like most other groups, the Commission has relied heavily upon the printed page for reporting its activities. Reports of experimentation and ideas were provided in the January 1958 and 1959 issues of the NASSP BULLETIN. A separate pamphlet, *New Horizons for Secondary-School Teachers*, was widely distributed during the first year of the Commission's existence. *Images of the Future* was described in the preceding paragraph. Numerous articles have also appeared in a wide variety of magazines and newspapers.

Speeches

In addition to the printed page, members of the Commission and staff have relied heavily on public statements. Many speeches have been given in practically all parts of the country to a wide variety of lay and professional groups. Speeches were made at the 1957 and 1958 NASSP Conventions in Washington, D. C., and Indianapolis, Indiana. Appearances have been made before many state principals' association meetings. Although these talks were received with considerable interest, members of the Commission have felt that, in harmony with ideas expressed by them and the experimental approaches being used in schools, ways of reporting were needed in addition to the printed page and speeches.

Use of Modern Technology

After much discussion, the Commission decided to experiment at the NASSP Convention in Philadelphia on February 7, 1959, with a different method of reporting on Commission projects and ideas. The result was a program quite different from those typically presented to conventions of professional educators. A television studio with a live class was presented on the stage. The use of a video tape recorder permitted the teacher immediately following his presentation to look at himself as he had taught. Students were also seen being taught by magnetic tape, films, and slides. A teacher gave an effective presentation of transparencies prepared for overhead projection. An explanatory script introduced and explained what was being shown. The 90-minute program, presented twice, was made possible through the cooperation of many students and teachers under the direction of a professional producer.

Members of the audiences were presented with the Commission publication, *Images of the Future*, as they left the NASSP program. This publication further explained some of the ideas which had been presented on the stage as well as implications for further improvements in schools. The combination of distribution of the booklet and use of modern

technological aids apparently was more effective than the usual method of speaking about activities of a committee or commission.

The Commission plans to explore further different methods of reporting. Plans are underway for the preparation of sound films and video tape as well as a study guide and a book-length summary. The combination of a variety of reporting techniques may provide further stimulation for discussion and experimentation.

STATE PRINCIPALS' ASSOCIATION WORKSHOPS

During the summer of 1959, the Commission provided financial support to state principals' associations for holding summer workshops on staff utilization. Experimental workshops were held in South Carolina, Texas, Minnesota, Iowa, and Arizona. Representatives of experimental schools as well as the Commission were present at each of these workshops to describe Commission projects and ideas. Members of state departments of public instruction and persons from institutions of higher learning also cooperated and presented ideas.

Considerable time was spent in each workshop in small-group discussion so that those in attendance could discover ways in which these studies might be utilized in their respective schools. Reports of the workshops were distributed among high-school principals in the respective states. The workshops represented another method of reporting on Commission activities. The Commission hopes that comparable workshops may be held in many other states.

ADDITIONS TO STAFF

During the third year of the Commission project, two associate directors, each on a one-half time basis, were added to the staff which prior to that time had included only the director, J. Lloyd Trump, who was serving on a seven-eighths time basis. Robert B. Moore of Stanford University and Lee Pigott of Decatur, Illinois, started serving the Commission in September of 1958 and 1959 respectively. Both of these men have had extensive experience in secondary education.

The Commission early decided not to employ an extensive central staff. As a matter of fact, the three part-time staff members live in separate cities. Mr. Moore serves primarily in the Western area and Mr. Pigott in the Middle West area of the country. After January 1, Mr. Trump will be in Washington, D. C. This limited and de-centralized staff visit schools, write letters and articles, and meet with many groups. As was pointed out earlier, consultant help for local projects has been obtained by the schools from nearby higher education institutions and state departments.

The Commission meets periodically to set policies, study reports, plan activities, and engage in evaluation of accomplishments. Interested persons are invited to talk or correspond with Commission or staff members.

An Appraisal of NASSP's Staff Utilization Study at the Close of Its First Two Years

BERYL R. DILLMAN

MANY cooperative efforts have been aimed directly at the improvement of education. Some of these have been on a national, some on a regional, and some on a more local basis. Although the total work of the NASSP's Commission on the Experimental Study of the Utilization of the Staff in the Secondary School is yet to be evaluated, a thorough study by the writer of the first two-years' work of the Commission indicates that this four-year project undoubtedly will take its place among other outstanding cooperative efforts aimed at the improvement of education.

SETTING FOR THE COMMISSION'S WORK

Illustrative of these efforts on a national basis was the Eight-Year Study of the Progressive Education Association in which thirty high schools in various parts of the nation were selected as experimental schools, each developing its own plans and deciding for itself changes in curriculum, organization, and procedure. Similarly, schools under the supervision of the NASSP's Commission were given great freedom in selecting projects. None was accepted, however, until the studies were clearly outlined and certain criteria met.

The Consumer Education Study of the NASSP, another cooperative effort to improve education, was directed toward recognizing and meeting imperative needs of youth, while the Commission's Study is concerned with better utilization of the staff. Whereas the Consumer Education Study culminated in a series of teaching-learning units, the Staff Utilization Study is concerned with a number of independent school projects.

A regional effort analogous to the Commission's Staff Utilization Study was the Southern Study of the Southern Association of Secondary Schools and Colleges in which thirty-three high schools, three from each of the eleven states of the Southern Association, participated. Similarity between the Southern Study and the Commission's Study is noted in that both stimulated experimentation, and both placed great concern upon effects related to students and staff.

Dr. Beryl R. Dillman is Assistant Professor of Education, University of California, Santa Barbara, Goleta, California.



This flannel board on the secession of the Southern States just before the War Between the States is being prepared by members of the Visual Aids Club in Wahlquist Junior High School, Weber County, Utah.



A Beecher (Illinois) Junior High-School class is using the Science Research Reading Laboratory. Each student reads at his own level.

The experimental projects of the Commission during the first two years involved a wide geographical front in that participating schools were scattered over the nation in various states from Minnesota to Texas, and from Massachusetts to Colorado. The nature of the experiments varied from school to school, no two being exactly alike; and in some cases, individual schools conducted a variety of staff utilization projects.

PURPOSE OF THE AUTHOR'S STUDY

The purpose of the study by the writer was to examine the first two-years' work of the NASSP Commission on the Experimental Study of the Utilization of the Staff in the Secondary School in order to:

1. See the extent to which the Commission had done what it set out to do
2. Find the relatedness between the reported findings and the Commission's stated objectives relative to effects on students, staff members, parents, and others of the public
3. Discover the extent to which elements of the projects were continued
4. Bring to light problems associated with the studies
5. Present cost analyses for consideration of financial feasibility

PROCEDURE AND METHOD OF THE STUDY

Data for the study included minutes of the Commission's meetings, project reports from the participating schools to the Commission, mimeographed bulletins from the office of the Commission Director, and publications sponsored by the Commission. The first procedural step consisted of a thorough study of the data at hand. Then an attempt was made to indicate the setting for the Commission's work by summarizing from the literature illustrative national, regional, and local efforts to improve the status of education. Presented was an historical account of the Commission—its formation, personnel, duties, and activities.

The reported findings of Commission sponsored studies were examined, summarized, and presented according to kinds of projects encountered. Special attention was given to effects on students relative to achievement and attitudes, and to determining the extent to which conditions in the teaching-learning situation were maintained. Also, results concerning teachers were especially treated in order to observe changes effected in teacher-pupil ratio, recruitment, holding power, recognition of individual differences, attitudes, and teacher education.

Projects were classified according to five categories: (1) changes in personnel, (2) use of audio-visual aids, (3) changes in class size and/or schedule, (4) use of community resources, and (5) validation of previously prepared criteria. More specifically, the following outline shows the classification of projects included in this study of the first two-years' work of the Commission.

Changes in Personnel

Bus drivers as teacher assistants at Richwood, West Virginia

Non-certificated science laboratory assistants at Roseville, Minnesota



Guest lecturers are accepted as a good source of supplementary information and motivation. In schools with regular schedules, they must speak to several groups at different times or the schedule is disrupted for an assembly or some students miss the program.

When the schedule is modified to provide some large groups, persons can be invited to make presentations with a minimum of problems. In every community there are persons who can help provide a rich educational experience for pupils throughout the year.

The teachers can all remain with the group or some of them can use this time for additional research and planning. Here two of the teachers of this group of 160 students have remained for the lecture.



Science activity on Saturday morning with laboratories open to students under supervision of qualified teacher assistants.—Alexander Ramsey High School, Roseville, Minnesota

Non-certificated librarian at Beecher, Illinois

Team teaching and use of non-certificated aides in large classes in Jefferson County, Colorado

Redeployment of teaching staff on a teacher-ability basis at Newtonville, Massachusetts

Experiments in a new school with redeployment of staff at Syosset, New York

Team teaching and teacher preparation for special presentations at Snyder, Texas

Use of teacher-paid trainees at St. Paul, Minnesota

Use of Audio-Visual Aids

Closed circuit television at Evanston, Illinois

Tape recordings at Omaha, Nebraska

Reading machines and use of tape recorder at Beecher, Illinois

Physics films in the state of Utah

Changes in Class Size and/or Schedule

Changes in both size and schedule of classes at Newtonville, Massachusetts

Changes in class size and schedule at Snyder, Texas

Changes in class size at Jefferson County, Colorado

Changes in class size and schedule at Syosset, New York

Variations in class schedule to accommodate core program in the state of Utah

Use of Community Resources

Search for community materials and persons to be used in the school program at Beecher, Illinois

Local people as non-certificated science laboratory assistants at Roseville, Minnesota

Validation of Criteria

Validation of previously prepared *Junior High-School Criteria* in the state of Utah

This classification was employed throughout the study in presenting summaries of reported findings submitted by the schools, and in analyzing the relatedness between the reported findings and the Commission's stated objectives.

CONCLUSIONS

The following conclusions are based on the author's study of Commission literature and an analysis of the reported findings from the experimental projects in the light of the Commission's stated objectives.

1. During its first two years, the NASSP's Commission on the Experimental Study of the Utilization of the Staff in the Secondary School has faithfully and satisfactorily performed its duties.

2. Improvement in the professional status of secondary teachers and secondary schools was noted in projects involving special teacher assignments, team teaching, aides to certificated teachers, and validation of carefully prepared criteria for junior high schools.

3. More effective and efficient use of staff members has been demonstrated with provisions for teacher aides, redeployment of teachers, and special use of audio-visual aids in the experimental situations studied.

4. Secondary schools across the nation have demonstrated a willingness to conduct experiments relative to staff utilization. The experiments in this study resulted in favorable modification of the schools' educational programs.

5. There appears to be little evidence at present that the Experimental Studies in Staff Utilization have done much to reduce teacher-pupil ratio; however, two years may not be sufficient time to allow for noticeable differences.

6. While teachers involved in experimental situations tended to be enthusiastic or favorably inclined toward the experiments and toward acceptance of change in procedure, teachers not involved tended to be neutral or negative.

7. Findings reveal a need for conditioning teachers to change in order to overcome difficulties when innovations take the place of conventional classroom procedures.

8. Experimental procedures were demonstrated which provide greater recognition for teachers' individual differences than are provided conventionally.

9. Enthusiasm and interest exhibited by teachers in many of the experimental situations may very well serve as positive factors in recruiting and retaining teachers.

10. While scholarships may be an incentive to attract prospective teachers, they are no guarantee that trainees will remain.

11. Participation in staff utilization projects serves as one avenue for schools to initiate and continue in-service training of teachers.

12. Teachers have manifested that, with the help of certain audio-visual aids, they can successfully instruct a greater number of pupils than conventional class size permits.

13. Students in large groups (60 to 100 or greater) appear to learn factual information as well as students in conventional size classes.

14. Findings indicate that students involved in the experimental projects generally exhibit favorable attitudes.

15. Public interest may be increased by schools' participation in experimental projects. Furthermore, parents and others of the public, when properly informed, are generally favorable toward experimental programs.

16. Desirable conditions for teaching-learning were generally maintained in the experimental situations described, and in many instances, certain conditions were greatly improved.

17. On the basis of available data concerning costs, many schools could feasibly implement one or many of the innovations considered. Furthermore, innovations which appear to be costly on a comparative basis, such as television, may not be so prohibitive when considered over a span of several years.

Part II

**Studies Completed at
End of 1958-59 School Year**



In the spring, after studying Spanish-by-tape for almost a year, seventh-grade pupils make their own puppets and write conversations for them from the phrases they have learned.—Westside School, Omaha, Nebraska



A business secretary borrowed for an hour from a local firm works with a discussion group in eighth-grade English. One member of the teacher-team supervises several groups. Students meet with other students working on similar problems to use the things they have learned in large classes and on their own. Longer than usual learning units permit some students to function in more than one group.—Snyder (Texas) High School

Three Years of Experimentation in a Small School at Beecher, Illinois

EDITH GROTEBERG
WINIFRED METZLER
ALFRED PIRTLE
GEORGE WEIGEL

THE Day of Judgment is at hand! Beecher terminates its experimental program¹ and must stand the test of evaluation. What changes resulted from the experiment, changes in teaching, curriculum, school organization, attitudes? Was anything new learned? How about expenses? These questions need answering in the final evaluation.

CHANGES IN CURRICULUM, TEACHING METHODS, ETC.

For three years the total faculty—never more than 13 members plus John French, the superintendent—gave time, energy, and talents to the experimental project. Enthusiasm waxed and waned periodically. Success and failure emerged alternately. But things happened, changes occurred. Here are some tabulated results of changes made directly as a result of the experimental program. Thirteen teachers identified and evaluated the changes.

1. Number Making *Changes in Teaching Methods*—9

These changes consisted largely of expanded use of audio-visual aids, especially the tape recorder, library facilities, student aides, and cadet teachers.

2. Number Making *Changes in Curriculum*—11

The changes included expanding the curriculum, eliminating material duplicated in another course, adding a library unit, organizing units around special teaching devices, introducing units in reading, recording new materials, and visiting classes to understand better how to coordinate subjects.

¹ For an extensive report of the first two years of the experimental program, consult articles on Beecher in the 1958 and 1959 January issues of *THE BULLETIN*, The National Association of Secondary-School Principals.

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3. Number Making *Other Changes*—8

Using cadet teachers and student aides, more careful guidance of students, more thorough organization and planning, more evaluation, broader personal reading, new attitudes toward changes—these appeared as other changes made.

4. Number Who *Learned New Things*—13

Everyone learned from the experimental program. New things learned ranged from experimental and research procedure through new methods and techniques of teaching and evaluating to recognition of the value of consultant help and in-service training.

No one denies the difficulty of isolating direct cause-effect relationships. Many of these changes may have occurred despite the experimental program; however, the teachers themselves felt the changes identified resulted directly from participation in the program.

WHAT DOES EXPERIMENTATION COST?

Expenses accrued during the 1958-1959 year² of the experimental program break down as follows:

<i>Expenditure</i>	<i>Amount</i>	<i>Percentage</i>
Workshops.....	\$1,498.75	29
Travel.....	498.52	9
Substitute Teachers.....	55.12	1
Consultant Assistance.....	2,622.00	51
Teaching Aides.....	453.70	8
Clerical Assistance.....	101.46	2
TOTAL.....	\$5,229.55	100

The administration had this to say about the expenses:

An initial evaluation of a program such as we have recently conducted cannot be evaluated on the basis of monetary expenditure alone. There are so many intangible items such as teacher, student, and administrative time which is not included as an expenditure, as far as this report is concerned.

We are also aware of the intangible gains such as in-service training, educational growth, increased interest and improved public relations which may be gained from a program such as this.

You may observe that a greater percentage of the money was expended for consultant help. We feel that this is a worthy expenditure since specialists from colleges and universities may contribute to organization and guidance services which might be very difficult for the average school administrator to offer. This also may provide a closer working relationship between the public high school and institutions of higher learning. Teachers were re-assured in their ideas and plans when a specialist assisted, criticized, or evaluated their efforts.

² For expenses accrued during the first two years of the experimentation, consult articles on Beecher in the 1958 and the 1959 January issues of *THE BULLETIN*, The National Association of Secondary-School Principals.

The average school system of today would probably have difficulty in selling a board of education or community on the idea of expending such amounts of money for experimentation as we have done. But when gains in teacher efficiency and morale become obvious, such an expenditure will be given much more consideration.

It should be added that the Board of Education more than once allocated school funds to support programs in addition to those encompassed by the experimental program. Provisions for a summer reading clinic and an improved elementary-school reading program are two such items.

EXPERIMENTATION MOVES TO INCORPORATION

Many things that were experimental in nature during the first two years of the project became part of the school program.³ Improvements continued to appear in the area of tape recorders, reading machines, student aides and cadets, special reading classes; but these aspects of the project were no longer truly experimental in nature. For example, *another special reading class* was organized along the lines of the class of the preceding year. The results were significant. There was an average gain in words per minute of 41 words, an average gain of 13.3% in reading comprehension, and an average gain in total comprehension of 15.5%. The last two gains are percentile gains. This means the students in the special class changed their relative position in percentile rank as compared with the rest of the population. These gains are comparable to those made the previous year and as the instructor said, "This reading program has ceased to be an experimental situation and indeed has become one in which successful experimental results were put to use in the curriculum."

The business education department had experimented last year with tape recordings. This year several phases of the program of tape-utilization were continued. First, some use was made of the tapes prepared to accompany the first-semester text in Stenography II. This program met with only mediocre success, as the class was of a lower ability than that of the year before, perhaps below average in this respect. Therefore, the speed of the taped dictation exceeded the writing ability of the students after several months' work.

It was at this point that the purchased speed development tapes were introduced. Dictation at lower levels of speed and of easier content material was used as a remedial measure. Students were required to write outlines without assistance from the teacher, then corrections were made and the dictation was taken at higher speeds.

The same speed development tapes were used in the beginning class with excellent results. At intervals, perhaps every six weeks, taped dictation at speeds higher than that to which the girls were accustomed was introduced with the following procedure: The tape was played at the

³ For a detailed account of specific experimentations in these areas, consult John French, Melvin Donaho, and Edith Grothberg, "A Small School in Beecher, Illinois, Makes Big Studies." *THE BULLETIN*, The National Association of Secondary-School Principals. January 1959, pp. 85-99.



This Beecher (Illinois) Junior High-School spelling class is taking a test by means of the tape recorder. The teacher is at work planning a reading lesson.



Beecher (Illinois) High-School students who need extra practice in developing reading skills use the controlled reader. Test results show that their reading speed and comprehension both increase significantly with the use of this machine.

lowest speed available, the teacher writing the material on a chalkboard. The students then criticized and corrected the teacher's writing. The tape was then played at the lowest speed for the students, with the teacher circulating about the room observing the writing. The notes were then read back, corrected, and the tape played at the same or higher speeds, depending upon the students' progress. This method seemed to bring good results, and the class achieved at an above-average level throughout the year, with a result of about half of the class attaining "A" level work by the end of two semesters.

Modifications and new approaches were necessary this year. These are certainly characteristic of constant evaluation of experimental procedures and results. The instructor became highly skilled in recognizing both the need for variations and the procedure for bringing about these changes.

Two aspects of the experimental program need special consideration. One is the experiment in the use of a non-certificated librarian in the school library. The experiment, begun three years ago and interrupted because of a change in consultants, continued under new leadership. The other is the guidance program initiated this year. We will look at them separately.

CONTINUATION OF LIBRARY PROGRAM

The Beecher High School was without a professional library consultant from June 1957 until February 1958. At that time a new consultant was secured. From February 1958 through June 1959, the consultant made sixteen one-day visits to the school. Three areas were chosen for emphasis: (1) improvement in the materials collection of the library, (2) continuation of in-service instruction for the acting librarian, and (3) continuation of improvement in library service to faculty and students.

The Materials Collection

1. A survey was made of the library's holdings. Fiction and biography were high and most other fields were weak. Fiction was not purchased during the remainder of the study. It was borrowed from the State Library and funds for general reference and information books were thus increased.

2. The budget was allotted on a percentage basis to the various subject fields. The library consultant spent one day working with faculty members who were given an opportunity to see the library budget for the entire school, and to know how and why it was so allotted. Time was spent in instructing the teachers in the use of standard book selection tools from which they submitted their requests for books. The librarian assumed the obligation of selecting materials for subjects for which teachers did not make requests.

3. A total of 568 new titles was added, and 37 obsolete books were discarded. The library now has a very creditable reference collection. The librarian maintains a potential order file for future reference and

general informational books. Fiction will again be purchased in 1959-1960.

4. Magazines are now received on a yearly basis, saved and filed. New subscriptions will be added again next year. The collection is adequate. As it grows, more profitable use of the *Abridged Readers Guide to Periodicals* will become increasingly apparent to faculty and students.

5. Classroom collections have been brought into the library from the junior high school and the social science classrooms. Agriculture, industrial arts, and homemaking still retain collections which are not indexed in the central catalog.

6. The book collection varies from excellent to fair in subject areas. It needs further strengthening of books on the United Nations and world planning, and books about inter-group understanding, although much of the fiction does apply to the latter.

7. The pamphlet collection is well balanced to meet the needs of the school, and current materials are adequately represented.

8. The library has two record players with earphone attachments, 75 records, filmstrips and three reading accelerators.

In-Service Instruction for Acting Librarian

1. In February 1958 the acting librarian was given instruction in changing the cumbersome date-due circulation file to one based on the Dewey Decimal system, which is the system under which books are catalogued and shelved. The resultant efficiency in the handling of the circulation of all materials has been excellent.

2. The library consultant instructed student assistants in working with the circulation files and the librarian continued instruction.

3. The acting librarian has been given instruction in simplified cataloging, weeding of unsuitable books, book selection, preparation of bibliographies, methods for keeping such records as potential-order files, on-order files, and records of books received. She knows how to handle over-due notices, recall notices, lost and paid book records, and individual student reading records. She also knows how to take inventory, make an annual report, and keep circulation statistics.

4. The librarian has been encouraged in working continuously at the important task of building her knowledge of the collection. She has received instruction in the use of new reference books so that she may be better able to teach students effective use of these resources. She has been instructed in methods used to determine the readability grade-level of books. The consultant has asked that reading tests which convert to reading grade-level equivalents be administered. Such knowledge is important in a librarian's reading guidance program.

Library Service and Evaluation

1. The librarian implements over-all library instruction and cooperates with English teachers in instructing students in the use of resources.

2. Data secured from students indicates that all students feel that they know how to use the card catalog. High-school students indicated understanding of the use of the *Abridged Readers Guide*. Junior high-school students did not show such satisfactory understanding of this tool.

3. Fifty per cent of the students stated they find answers to questions in the library. This would indicate the need for the librarian to have more periods each day devoted exclusively to work with students. Two of the five periods which she spends in the library are given over to study hall supervision. Many students suggested that the librarian be in the library full time to help them when they need help.

4. Students have been introduced to other libraries through books and magazines borrowed from the State Library. The nearest public library is in Chicago Heights some 12 miles away. Students have been encouraged to use this library. Seven have used it some two to three times, and, for the first time this past year, one student used it once a week.

5. The library is used to at least seventy-five per cent of its capacity for most class periods. Junior high-school pupils use it as a group once a week. Some of these students indicated they also used it after school hours. Groups of students have been frequently sent to the library by English, social science, and science teachers with classes coming on an average 10 times a month throughout 1958-59. The faculty is using the library much more than formerly, but some teachers still fail to make much use of its resources.

6. Annotated bibliographies for units of work have been prepared for the following subjects: English, family living, history, science, and industrial arts. Resource bibliographies indicating grade level of each book listed have been prepared for English and history teachers.

7. While it is believed the librarian has been able to do a good job in motivating students to use the library, the work in library publicity has been weak. Some displays have been made and the school newspaper gave space to library publicity once this past year. Time has proved a discouraging factor. Publicity is a time consuming job and the librarian has been blocked in efforts to devote time to it. She realizes more effective publicity is needed.

8. Analysis of circulation statistics indicates an increase in circulation of non-fiction, reserve books, and reference materials. In subject areas, English, social science, pure and applied science, and music show the greatest increase in use. Individual student reading records are kept. Such records have proved valuable to the librarian in reading guidance and to teachers in evaluating the use of the library by individuals. Since the beginning of the study, circulation of books has almost tripled. For the period in which records were kept in 1956-57, the average monthly circulation was 124. In 1958-59, the average monthly circulation was 363.

Individual student reading records were not available in 1956-57. However, during the first third of the calendar year 1959, the per capita free reading by grade level was as follows:

<i>Grade Level</i>	<i>Per Capita Circulation</i>
7	2.2
8	2.
9	2.2
10	1.2
11	1.1
12	.2

Implications

Ideally each school should have a trained librarian, but it is recognized that many schools face the problem of not being able to employ one. It is believed that the Experimental Study at Beecher High School has successfully shown that until a qualified librarian can be secured, a non-certificated person working under the direction and guidance of personnel from a library training department of an accredited university can render much worth-while library service. It is suggested that this is a service higher educational institutions might well render to public schools, and that local boards of education might provide funds for consultant service. Further studies are recommended.

This particular experiment has significance for other schools facing similar problems of non-certificated library personnel. The experiment in setting up a guidance services program is equally provocative. Many schools will see themselves described and may gain insights to the solutions of some of their problems in guidance. The exploratory nature of this phase of the experimental program is always recognized.

A GUIDANCE PROGRAM DEVELOPS THROUGH THE USE OF CONSULTANT SERVICE

After a brief examination by the consultant, it was obvious that the program of guidance services at Beecher could be improved further. By observation and interview, it was determined that Beecher High School was not peculiar in its having little of the various services that are usually accepted as being those that make up a full guidance services program. The status of the services that existed was roughly as follows:

Inventory Service

A four-drawer file was available for use, and did contain the information that was available; i.e., a smattering of manila folders containing little information other than the profile sheets from several test results. The academic record of each pupil was in the locked vault of the school, which was in the outer office of the building. The folder file was in the principal's office. No attempt had been made to bring this information together. The test results that were available were an achievement test administered in the seventh or eighth grade, and an IQ test administered at the same time. A health record card that was maintained

by the members of the PTA on a volunteer basis was available in the file and contained information regarding inoculations and physical examinations. No attempt had been made to coordinate, compile, or synthesize these various items of information.

Information Service

1. *Occupational Information.* The material of this nature available was primarily in the library, and consisted of (1) a commercially prepared kit that was available upon request and, (2) publications of the U. S. Department of Labor plus the *Dictionary of Occupational Titles*. The vocational agriculture department, however, had information for boys interested in this vocation.

2. *Educational Information.* Catalogs from most schools of higher learning in the area which graduates of Beecher High School attended in the past were available in another part of the library from the occupational information. Folders and catalogs from trade schools were also present.

3. *Personal-Social Information.* Any evidence of this kind of information being in any organized form was not found, nor was there any evidence of there being any organized plan for providing this information to the students.

Counseling Service. A pupil needing assistance was usually called into conference by the principal. Such a conference dealt with every aspect of problems that could arise. Any pupil, of his own volition, could ask for a conference with the principal or the superintendent. Most of the teachers were playing an important role in assisting pupils when assistance was needed or desired. However these conferences were initiated, there was available only meager information to assist the pupil. It must be recognized though that these conferences were of value in some instances as these school people would draw from their individual and collective experiences to assist in the immediate problem.

Placement Service. This service was present, but not in any planned way. The school administrators would assist any in-calling potential employer in filling a position, if either of them knew of someone of the pupils who might be able to meet the qualifications desired. The teacher of the business education classes knew of individuals who could fill certain types of jobs, and would be sensitive to any call that might reach that department. The vocational agriculture teacher was alert to calls that might come his way. All calls for qualified workers for post-graduation employment or for summer jobs or for drop-out employment were handled in the same way.

Follow-Up Service. No plan was ever attempted to do a follow-up study of graduates or drop-outs. The school administrators and teachers all had some information as to what many of these ex-pupils were doing; but the service, as such, was at no time present.

Steps Toward Improvement. Presentations concerning the need for, advantages from, and purposes of a guidance service program were made at general faculty meetings. Each one present was regarded as a potential guidance worker. The staff soon came to the position of realization that there were present in the school's organization many things and practices, which, if continued with slight modification, could be the beginning of the desired end.

The first attack was directed at the inventory service. It was determined that the facilities present were adequate, but that some new method of bringing together all the available information would be necessary. By committee action a decision was made to begin the use of a commercially prepared cumulative record folder. This decision was reached after carefully considering the advantages as well as disadvantages of the commercially prepared folder as opposed to a locally prepared folder. With this decision having been reached, it was then necessary to bring about the use of the new instrument. Within a few weeks and with the help of the faculty and clerical assistants, the folders were ready for use. All available information had been entered on the forms. The information to be eventually added to the folders was agreed upon by the faculty and administration with the assistance of the consultant.

Consideration was given to the information service with the help of the librarian. It was agreed that all occupational information be localized in the library, and that special attention be called to this new location so that all pupils would know of the materials that were available to them. The entire faculty was made to realize the presence of these materials and was offered suggestions as to how these could be used to better advantage in their particular class work.

The actual counseling service was given much consideration by the administration, all the faculty, and the consultant. It was finally decided that those members of the staff who would like to be considered as possible advisers should be given an opportunity so to indicate their willingness to take on this additional load. From the group who indicated an interest, four were chosen arbitrarily by the administration, in conference with the consultant. One period a day was to be devoted to a counseling assignment by each of those chosen. With a load of roughly thirty pupils, this appeared to be a sensible working arrangement. In the final months of the school year, each pupil of the upper four grades was seen at least once by each of the counselors. Since the development of this counseling service naturally was slow, the growth of the counseling possibilities has yet to be seen; however, counseling possibilities are now available in an organized fashion.

No attempt has been made to begin work on the placement and follow-up services necessary for a well-rounded program. It was believed that these services could be added after the other services had developed more fully.

An attempt was made to get the reactions from the faculty members as to the status of the guidance program at the end of the academic year. Each member of the faculty and the administration were asked to react to all parts of the "Guidance Services," Section G, Evaluative Criteria, published by the Cooperative Study of Secondary-School Standards.

As the individual services were reviewed by the faculty using the *Criteria*, the following generalizations can be drawn:

1. A ratio of four to five still feel that the inventory service, after having been begun and in operation, is such that it is very limited or non-existent.
2. The information service is held in much higher esteem. A ratio of three to four report this service to be present or in extensive use.
3. A ratio of three to five evaluate the counseling service as adequate.
4. The placement and follow-up services each are reacted to so that only one in eight of the faculty recognize their presence to any degree.

Some Tentative Results

With the completion of the first year's work in a small high school where a consultant was used to assist in the development of a guidance services program, some tentative conclusions can be drawn. The exploratory nature of this experiment is again emphasized.

1. The faculty and administration of a high school may take part in a guidance services program.
2. The same group may, with the training of a consultant, identify those operations that are present in a school that can be used for the foundation for a future program.
3. Through in-service training, the faculty may become acquainted with various tools and techniques to the point of their determining the adequacy of those being used in the school, and then choose and use new devices that will bring about the desired end.
4. Teacher-counselors may be identified and, with sufficient time for training and subsequent practice under general and not ever present supervision, may be able to carry on with a guidance program.
5. Through assistance and training, the teacher-counselors and the faculty as a whole may become sufficiently sensitive to an on-going program that has been developed by them, to evaluate that program, and to determine wherein further work can be done to improve that which has developed.
6. A continuing program with improvements may become the regular operating procedure.

MORALE: BEFORE AND AFTER

Faculty morale loomed large as a factor for evaluation of the total experimental program. What changes occurred in morale? Did the experimental program influence it noticeably?

A pre- and post-opinionnaire attempted to measure this variable. The same two requests were made at the beginning of the project and again at the end. They were: (1) list those things which you feel are good about your present position and explain why; and (2) list those things which you do not like about your present position and explain why.

Factors that faculty members regarded as favorable, both before and after the program, are the following:

1. Cooperative, friendly, interested faculty
2. Helpful, supportive, friendly administration
3. Interested, cooperative community
4. Satisfactory location and size of school
5. Clean, pleasant, well-maintained plant
6. Adequate teaching materials

No factors appeared in the first opinionnaire which did not appear in the second. However, there was one notable addition to the second opinionnaire; it concerned curriculum. The faculty found these curricular changes favorable:

1. Opportunity to experiment
2. Freedom to reorganize units of instruction
3. Enrichment programs approved
4. New curricula added
5. Improved library facilities for use with teaching units

The importance of the inclusion of curriculum as something very desirable in this post-evaluation must not be minimized. The faculty developed, as a result of the experimental experience, a new attitude toward curricular change and, indeed, toward curriculum. Making changes, experimenting with curriculum became challenging and fun. Greater self-confidence seemed to promote more willingness to make curricular changes and the rewards were obviously pleasant.

On the deficit side, the following factors appeared on both the before and after opinionnaire:

1. Crowded, inadequate classrooms
2. Insufficient disciplinary support from the administration
3. Overloaded with classes, duties, and extra-curricular activities
4. Uncompensated extra work
5. Unsatisfactory class and extra-curricular activities scheduling

Some criticisms mentioned only in the *before* opinionnaire included:

1. Janitor work done by teachers
2. Insufficient cupboards and shelves
3. Badly placed boards

Apparently these complaints were rectified. Some new criticisms in the *after* opinionnaire are these:

1. Students do not respect library facilities
2. Students are not serious enough
3. Can't always experiment with a new curricular idea
4. Parental indifference to school

5. Promotional policies too liberal for students
6. Need more faculty
7. Insufficient salary increments
8. No pre-requisites for advanced courses
9. Librarian's duties not specified

The more critical attitudes toward students, the community, and working conditions may be the result of length of time in teaching at Beecher. The average length of time was three years and that was the length of time of the experimental program. Perhaps there were more stars in the eyes three years ago!

Beecher continues to hold its teachers. However, several teachers have achieved some recognition for their experimentation and at least one has already been lured away! The experimental program, initially holding faculty, may make faculty members so valuable that they become highly desirable to competing systems. There is no question that the faculty is a highly skilled one as a result of the experience. Beecher seems to be able to hold most of the staff in spite of the offers from other systems.

CONTRIBUTORS AND DETERRENTS

The faculty took one long last look at its three-years' experience in experimentation and decided that several identifiable factors contributed to its success while some detracted. Those factors contributing to the project's success are:

1. Enthusiasm and cooperation of administration, staff, and students
2. Consultant help
3. Work of individual teachers
4. Prestige of being part of the project
5. Money available
6. Clerical personnel
7. Nature of project

Those factors deterring the project or interfering with success are the following:

1. Project spreading over too many areas
2. Individuals had too heavy a load
3. Some jealousy of the "more successful" faculty members
4. Too much paper work
5. Too many meetings
6. Not close enough check on progress

The staff clearly developed critical and evaluative skills during the years of the project. It will be interesting to watch subsequent changes that emerge from this total experience and evaluation. No teacher has remained immune to the effects of the experimental program and one suspects that its ending is seen with a considerable sense of loss. It has been motivating. It has drawn people together. It has been fun. We all will miss it.

Development of Independent Study Skills in American History in Fairfield, Illinois

MARGARET SPENCE THACKER

H. C. LARGENT

GARLAND G. RILEY

EDUCATORS have become more and more concerned because students do not seem to acquire sufficient abilities in independent study and thinking. Often through faults other than their own, the majority of students do not know how or what to study. This project was concerned with teaching students to develop study skills by applying certain methods to the study of American History. The plan used was developed by Clarence W. Stephens of Southern Illinois University, Carbondale, Illinois. Mr. Stephens felt that his plan would help students acquire the ability to classify and evaluate content as to worth and value so that the student might read and study more effectively. We used this plan in two of the five classes of American History. All the classes were heterogenous groups. We compared and evaluated the methods the teacher had used previously with Mr. Stephen's plan in order to determine any further expansion of its use.

THE PLAN

One way that these skills may be obtained is through the use and expansion of the Navy Target Plan. The *must's* include only a small portion of the content. Some inclusions follow: (1) the broad principles or theories; (2) those learnings which have to be acquired for understanding of future content; (3) opinions of important groups and individual authorities in the field; (4) if applicable, the implications of the content as related to everyday modern living; and (5) if applicable, the determination of pertinent parallel relationships or differences between the past and the present. The middle ring in the target contains the *good* classification. Included are: (1) expansion of the *must's* to the extent that they are understood; (2) the implementation of broad principles or theories; (3) that which furthers the understanding of broad principles; and (4) some background or examples. The outer ring in the target

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contains the *nice's*. Included are: (1) filler material; (2) expansion of that which is good to know; and (3) material which only the better students would understand or remember.

METHOD OF PRESENTATION

The students were given a general idea of what we would be trying to accomplish. They were invited to ask questions to clarify any items they did not understand. At this point the students showed a decided interest in what we would be doing. The class discussed the essentials in learning how to study and agreed on five points which they felt were bare essentials.

The Navy Target Plan was explained and illustrations were used to show the students what to look for in studying. The class was assigned Chapter I. They were told to scan the chapter, then attempt to list the *must's* and *good's* from a second careful reading. The importance of reading the material prior to discussion and classification was stressed.

The instructor works with the class group during class discussions in selecting the *must's* and *good's* from the chapter, emphasizing why a particular sentence or passage is a *must*. A follow through with Chapter II, using the same procedure, was completed. It became clear to the students that their opinions would differ widely among their peer group as well as with the instructor. Before one of the class periods during which the first two chapters were being analyzed, the teacher introduced the procedure to be used in the workshop technique.

WORKSHOP WAY OF LEARNING

The general techniques used in this particular study are listed. There are variations which can be utilized in more advanced groups.

1. Each class was divided into four groups of about eight students.
2. Each group selected a chairman and a recorder.
3. The chairman and recorder were changed so that each member of the group served in each capacity.
4. The chairman obtains the opinions of each participant as to *must's*, *good's*, and *nice's*.
5. Majority opinion prevailed; however, the recorder was able to indicate to the other recorders or to the total class the degree of acceptance by his own group.
6. The teacher met with the chairmen and recorders of the groups and discussed with them their responsibilities. Through discussion with their group, she helped them draw up a list of rules which aided in accomplishing their objectives.
7. The teacher called the class together even after they were working in groups to review workshop procedures and to clarify any points necessary.
8. Each group classified content in the same chapter.

9. The teacher visited each group to check on procedures being used and progress being made.

10. After all groups had finished, the recorders met as a group, selected a chairman, and exchanged group opinion. An alternative is for each group recorder to report to the class as to the classification made by his own group.

11. The teacher expressed her opinion relative to the classification of content.

12. The class had an opportunity to contribute further to the classification.

AIMS

At the beginning of this experiment, six basic aims were listed which it was hoped would be achieved to promote efficiency of study and learning of content. The aims listed were:

1. To teach basic, fundamental knowledge of American history
2. To help the student acquire skills in how and what to study
3. To stimulate the student to independent study and thinking
4. To help the student acquire skills which will aid him in his present and future needs
5. To help the student gain ability to make decisions upon weighing the evidence available
6. To help the student acquire the ability to evaluate himself

A discussion of these aims and their evaluation follows.

THE TEACHING OF BASIC FUNDAMENTAL KNOWLEDGE IN AMERICAN HISTORY

The question of how well does the Navy Target Plan provide for the teaching of basic, fundamental knowledge of American History led to the formulation of the following null hypothesis: *There will be no difference in achievement in basic, fundamental knowledge of American history between those students taught by the Navy Target Plan and those taught by the traditional method of lecture and class discussion.*

Two separate measures were obtained to test the null hypothesis. One set of measurements included scores from the *California Tests in Social Studies*, parts I, II, III, and IV. The other set of measurements included the teacher's grades.

As Measured by Standardized Tests. As a check to see if the control and the experimental groups were matched in average intelligence and basic abilities needed to study American history, the following scores were taken from the *Illinois Statewide Testing Program* for each student in the study: (1) Abstract Reasoning, (2) Verbal Reasoning, (3) Total Reasoning, and (4) Social Studies Reading Comprehension. The means for the experimental and control groups for these four scores are given in the following table. The scores given are standard scores. The mean is 50 and the standard deviation is 10.

ABILITY OF EXPERIMENTAL AND CONTROL GROUPS

	Experimental Group	Control Group
Abstract Reasoning.....	45.5	47.6
Verbal Reasoning.....	48.0	47.5
Total Reasoning.....	46.5	47.5
Social Studies Reading Comprehension.....	48.1	47.7

As can be seen by examining the table given above, the two groups appear to be matched reasonably well.

The means obtained from the standardized test scores for all four parts and the total score are given below.

CALIFORNIA SOCIAL SCIENCES TEST SCORES

	Experimental Group		Control Group		Difference Between Means
	Mean	Percentile	Mean	Percentile	
Part I.....	35.8	60	35.9	60	-0.1
Part II.....	22.4	50	23.9	60	-1.5
Part III.....	24.4	50	25.0	50	-0.6
Part IV.....	33.2	60	33.1	60	.1
Total Score.....	116	—	118	—	-2.0

An examination of the means of the various measures reveals that the differences between the experimental and control groups is not significant. Therefore, we are not able to reject the null hypothesis that the experimental group will acquire basic, fundamental knowledge of American history any better than the control group from this data. In fact the insignificant difference is in favor of the control group. Further analysis is planned to determine if more information lies within the data.

As Measured by Teacher Grades. The means of the grades given the students by the teacher were then examined. The grades were assigned on the basis of work done throughout the year. Papers handed in during the year were graded by the same standards in both the experimental and control groups. Usually, the same tests were used in all sections of both the experimental and control groups. In assigning grades, the teacher attempted to be impartial as to whether the students were in the experimental or control groups. The mean averages are given below (A=4, B=3, etc.)

As can be seen, there were differences between the means of the grades of the experimental and control groups. For the semester grades, the differences were equal for the first and second semesters. For each semester, the difference was significant at the .10 level. This is not high enough to permit one to reject definitely the null hypothesis and con-

TEACHER GRADES

	<i>Experimental Group</i>		<i>Control Group</i>		<i>Difference Between Means</i>	<i>Level of Signifi- cance</i>
	<i>Mean</i>	<i>Standard Deviation</i>	<i>Mean</i>	<i>Standard Deviation</i>		
1st Semester	2.00	1.18	1.72	1.12	.28	.10
2nd Semester	2.22	1.07	1.94	1.00	.28	.10
Total	4.22	2.30	3.66	2.00	.56	.0005

clude that there is a difference in favor of the experimental group. However, the difference is great enough to support that conclusion.

As a further check, semester grades were added together for each student. This resulted in smaller variances for the two groups and as a result, the difference became significant at a much higher level. For the total year, the difference became significant at a much higher level. For the total year, the difference in grades between the experimental and control groups was significant at the .0005 level. This leads one to reject the null hypothesis and conclude that there was a difference between the grade means of the experimental and control groups in favor of the experimental group.

Because of the many factors which may enter into the assignment of grades, it is hardly reasonable to conclude definitely that the students in the experimental group acquired more of the basic, fundamental knowledge of American history than did the control group. Neither can one conclude that the difference would appear if another teacher taught the course. However, the level of significance obtained in this study is very encouraging and suggests that the Navy Target Plan can be used to teach basic fundamental knowledge of American history at least as well as, and maybe better than, the traditional method.

ACQUIRING SKILLS IN HOW AND WHAT TO STUDY

One of the major objectives of the Navy Target Plan is to guide students in the development of study skills. It was decided that a good method to be used in determining whether the experimental method yields better results than the traditional method in the development of study skills was to do as follows. The teacher assigned two new chapters from the regular test to both the experimental and control groups. The students were told that they would be examined after a certain period of time over the two chapters. There was no class discussion or lectures about the content of the two chapters before the test was given.

It is interesting to note that, at both the time the assignment was made and the time the test was given, the control group sections objected to the idea; whereas, the experimental group did not.

To determine whether one method of teaching yields better results than the other, the following null hypothesis was formulated: *There will be no significant difference between the control and experimental groups as measured by the tests given at the end of the period of study on the two chapters.*

The various measures associated with the tests are given:

Experimental Group	
Mean	4.86
Standard Deviation	3.23
Control Group	
Mean	4.69
Standard Deviation	2.67
Difference Between Means	.15
Level of Significance	.20

The level of significance is not high enough to enable one to confidently reject the null hypothesis and conclude that there is a difference in favor of the experimental group. However, the level of significance is promising, and this is especially true when one remembers that we are attempting to measure the acquisition of study skills. This is certainly an area which merits more investigation.

STIMULATING THE STUDENT TO INDEPENDENT STUDY AND THINKING

Information that is of value in discussing this aim includes an examination of the amount of outside reading done by each of the students in the experimental and control groups. In addition, the observations of the teacher throughout the year are probably important in considering this topic.

Outside Reading of Books Related to American History. Observations early in the year indicated that students in the experimental group tended to go to outside sources more often to gain information about the topic they were studying. It was decided that, if this were true, it would be an important advantage of the Navy Target Plan. In order to obtain objective measures in this area, students in both the experimental and control groups were asked to keep a record of the books related to American history they read throughout the year. The total number of books related to American history read by each student was then used to compare the amount of outside reading done by the experimental and control groups. The comparisons of the number of books read by students are given below.

Experimental Group	
Mean	6.59
Standard Deviation	3.93
Control Group	
Mean	5.32
Standard Deviation	2.88
Difference Between Means	1.27
Level of Significance	.01

The data given above indicate that students will read more books related to American History if taught by the Navy Target Plan. One must always remember however, that there may be variables which have not been held constant, and there are indications that this is the case here. The experimental group was made up of two class sections, and the control group was made up of three sections; one of the control sections actually did more reading than did one of the experimental sections. We have been unable to explain this observation, and it certainly causes one to doubt the reliability of the conclusion that students will read more books related to American History if taught by the Navy Target Plan.

Outside Reading as Observed by the Teacher: While the record of outside readings shows the students read more in the Target Class than in the Control Group, there were other factors which cannot be measured objectively. It was very common for those in the Target classes to use the dictionary, the encyclopedias, and books on source material as the need arose. A group or groups felt free to consult these sources or the teacher about something they did not understand or wished to pursue further at the time the subject was under discussion. In the traditional class, this was done much less frequently. Perhaps under the lecture-discussion method a student feels that to voice a question might make him the center of attention of his peer group; perhaps he might be afraid someone would consider his ideas foolish; perhaps he feels that if he has read his assignment that is enough. One thing, however, is certain—the Target group used source material as a natural part of their class period; the traditionals did not to the same extent.

Both groups had the same stimuli to interest them in the outside material. The instructor presented this material as attractively to one group as to the other. The Traditional Group had the attitude that if told to read this or learn that they would; if not told, let it go. The Target Group, as time progressed, felt this material was something they could use and wanted to use it as a future aid to their own development and not because the teacher said they must learn this.

STUDENT ATTITUDES

In the first weeks of instruction, the attitudes that were to prevail were set up. We discussed the aims, purposes, and responsibility of the group. The students were made to feel that their roles were of vital importance and that success or failure was dependent upon the attitudes they had. It was stressed that they were to become independent learners and that the teacher intended to help them in every way possible that would contribute to their well being, but was not going to tell them what to learn and have them memorize these things slavishly without knowing *why*.

The chairmen and recorders selected by the respective groups met with the teacher, and after careful discussion arrived at the following rules, which would serve as guides. It was decided that the first six rules below were the responsibility of the chairman and the last four rules the responsibility of the recorder:

1. To hold things together and keep the team idea in mind rather than impose his own ideas on others
2. To keep the discussion moving on a realistic time schedule
3. To get the group off to a good start in order to maintain interests and enthusiasms
4. To see that all participate by bringing out the shy and, at the same time, avoiding letting anyone of the group dominate
5. To be sensitive to relevance. (As the students said, "We want to keep them on the beam.")
6. To seek help when it is needed
7. To keep records of group opinions—majority and minority
8. To be sure of group opinion, and check if in doubt
9. To keep records up-to-date and well organized
10. To report for their group to the total class

As the year progressed the chairmen and recorders often discussed not only how to better group work, but also the material that interested their groups, which they wanted to pursue further. In addition to this, the rating of the group given by the chairmen and recorders was discussed if the need arose. The students were rated by the chairman, the recorder, and the instructor on the following points using a 5 through 1 rating: Attitude, 1; Preparation, 2; Presentation, 3; Critical thinking, 4; and Participation, 5.

If there was a major difference in the three ratings, a conference was held and final decision was made from the meeting. As the students became more objective, their ratings were excellent and a great help in aiding those who might have a problem. Thus, students gained in their ability to evaluate objectively; tolerance of the needs and problems of others; leadership training; and the necessity to make decisions for the best interest of all.

FUNCTION OF THE TEACHER

The attitude of the teacher is of vital importance. The enthusiasm, interest, and well-being of the class is dependent on the teacher's interest and enthusiasm. She visits each group and corrects workshop procedure, but does not evaluate material for them. If a group seems to be having difficulty rating material, it is a good idea to review with them the meaning of *must's*, *good's* and *nice's*. This is usually enough to help them arrive at a decision. Above all—*do not weaken* and evaluate the material for them. This objective was accomplished when a group was having a heated debate on a point and asked for an opinion. One boy said, "Mrs. Thacker won't tell you who's right and who's wrong

until later, so let's get busy and decide for ourselves by applying the rules we have to go by." They did this and worked out the right answer.

If the teacher had told them, they would have lost a great deal in independent study skills and critical thinking. Some students felt that this was a terrible hardship, at first, because in all their school years they had been conditioned to expect and even wait for the teacher to tell them specifically what to learn and what to ignore, but as time went on they realized that this hands-off attitude was to help them develop their own ability and they took pride in deciding for themselves what they should know. This is a real challenge to the teacher because we have all become too apt at telling the students, instead of guiding *them* to learn, evaluate, and decide for themselves.

The lecture periods prior to group discussions should be planned with care as these are guide lines for major objectives as well as stimuli to the above-average students to pursue outside source material. After a chapter or a unit has been reported on by the recorders to the total class, the teacher discusses the evaluations they have made and gives her opinion. The dissenting opinions should be thoroughly discussed and logical reasons given for disagreement. Any points not already clarified are discussed, too.

The teacher should have on display a sampling of interesting resource material, at all times, and should encourage the student to become interested in these materials. Book covers and reviews, magazine articles, newspapers, recordings, tapes, film lists, resource books—all will benefit the student to understand history and ties in the past and the present with their effect upon the future and the contributions of these varied sources are great. The Target Classes used these sources as a natural part of their class work—not as something they did if it were assigned and slighted if it weren't.

Time is always a prime factor for the teacher. We never seem to have the time to do everything we want to do. Too many of us have long been frustrated by making routine assignments of a certain number of pages to be read and recited upon in a specific textbook in class with never enough time to discuss and use the variety of outside sources at our command. In the Target Classes, after the students have acquired skill in this method (about 6 to 8 weeks), the students are able to cover thoroughly a chapter in about one half the time it takes a traditional class using the same basic textbook. This leaves the time for discussing material from other sources to promote a more thorough understanding and get varying viewpoints.

The teacher also has time for individual conferences with students regarding their interests, problems, and desires so that they have an opportunity to work together with the teacher to their advantage. This allows individual differences to be noted and encouraged by the teacher, so that students may learn the basic fundamental knowledge required

for all and as much additional information as they are capable of learning. This not only can be helpful to the slow and average learners, but also can certainly be profitably utilized for the above-average students, who can become bored and fail to put forth effort in a traditional class.

DISCIPLINE

Discipline was a problem which we wondered about, as it is not usual to let students work on their own. Many feel that they may not work as well without close and constant supervision. Contrary to belief this was not a problem, as the students accepted responsibility and worked as well as, if not better than, their contemporaries in the traditional classes. One noticeable difference was that the Target Classes could and did go ahead on their own if the teacher was needed for conference, whereas, in the traditional classes discussion stops without the teacher.

If a student in one of the groups had not read all the material and had a tendency not to stay on the subject, his group quickly put him to "rights" by group pressure that he was letting the whole group down and must assume responsibility. The need for this kind of pressure became less as the year progressed. The students began to take real pride in their achievements as individuals and as a group. They seemed to enjoy their ability to go ahead and they were glad when any opportunity came up, so that they might prove their ability.

CONCLUSIONS

At the beginning of the year, three possible values of this Study were listed. They were: (1) Future teachers would have a procedure by which they could teach their pupils how to study; (2) Teachers would analyze their presentations somewhat more carefully; and (3) Students could be expected to do more independent study and constructive and reflective thinking.

These values and the aims are of primary concern to us as we go back over the year's work. We must ask ourselves whether the Target Plan accomplishes these values and aims better than the traditional method. To the extent that we have been able to measure the basic fundamental knowledge of American history by the use of standardized tests, we have been unable to find any significant differences, but what of the intangibles? Why were there fewer failures in the Target Classes? Some of the students gained from association with a small group. There are many students who would rather say they didn't know than express themselves before 25 or 30 of their peers; but, in a group of 7 to 9, these students began to express themselves and, when the time came to be chairman or recorder of their group, they became interested. They began to feel their individual worth and they responded. The teacher was a member of their team, not someone who asked them questions in front of others. They could feel closer to the teacher than before. Some of these students could never be A and B students, but they could make

C's or D's and they gained more than the grades indicated. They gained self-respect as their grades slowly improved. Even two or three points is quite an accomplishment for some students.

Based upon observations of performance, rather than grades, all have improved in varying degrees in these accomplishments:

1. Development of improved study skills
2. Leadership training
3. Tolerance and flexibility
4. Ability to think critically
5. Teamwork
6. Satisfaction of individual differences
7. Self-discipline

It is this teacher's opinion that if the physical facilities were available, classes of 50 students could be handled as effectively as a class approximately one half that size. It must be emphasized, however, that the room should be large enough to accommodate all the students for lectures, meetings of the total group, and have sufficient space for the groups to discuss and move freely, so that the materials they may desire to use are readily available. At the present time we do not have a large enough room to accommodate 50 students, but we have utilized a small room close to the history room for one group at a time, and it can be used for listening to records, work on research material, *etc.*, by the students.

In looking back over the year, it would be wise to list some suggestions to those who may plan to use this type of instruction in the future. They are *Do's*—

1. Keep a diary—a line or two a day—so that you may refer to it in the future
2. Have patience—the first 6 or 8 weeks are the hardest for both the instructor and students
3. Remember the students have had no experience in this type of teaching.
4. Expect some students to take longer to understand the importance of preparing and discussing their work without waiting for the instructor to say, "Learn this," *etc.*
5. Have a quiz now and then to keep lazy students on their toes. The need for this will be almost *nil* as you go into the second semester.
6. Encourage sharing of opinions and material gained from outside sources.
7. Have ideas, sources, and materials available for interested students.
8. Praise a group and/or a class when they have done a good job.
9. Share their enthusiasm, problems, interests, and ideas.
10. Relax—you'll make some mistakes, but you can profit from them and let the students know that all of you will be working together as a team on something new, so *nobody will know all the answers*; instead together you may hope to find some of the answers and share in the benefits. Make them partners and they will respond.

Finally, this has been a challenging and profitable year and the Target Plan has many advantages that may be derived which cannot be measured, but which will help the students in the years to come.

Springfield, Illinois, Teachers and Students Study Guidance Services

ROBERT D. FURRY

REASON FOR THE STUDY

AT SPRINGFIELD High School, the counseling program is organized around four study centers—two for boys and two for girls, with a counselor for each group. Each counselor has the same group for four years. The counselors' offices are located in the study center, thus providing pupils an excellent opportunity for interviews with their counselors. Teachers are assigned to monitor study centers in order to free counselors for conferences with students, faculty members, and parents.

Each counselor is responsible for 375 students, almost 175 more than the number recommended by the literature in the field. Many teachers at our school were subject centered and felt that responsibility for guidance rested largely on the counselors. The counselors resented this attitude and asked for faculty help and understanding of their problems.

The home rooms were set up rather autocratically by the principal without a great deal of faculty consultation. The guidance program had been criticized and a quick solution was sought. Boys and girls were assigned to home rooms arbitrarily according to grade levels. Faculty members were assigned home rooms with approximately thirty students. Guidance material was prepared by the principal and counselors for use in the home rooms. The home rooms (guidance rooms) met for thirty-two minutes every other week. (Hereafter the home rooms will be referred to as guidance rooms, since guidance was their primary function.)

After three or four meetings of the guidance rooms, the faculty members requested permission to work out the guidance topics for their own grade level. Permission was granted and four guidance committees were organized, one for each grade level.

Teachers found that the material prepared by their committees was much more suitable and at least two committees did an excellent job in preparing for the guidance-room sessions. At the end of the year an attempt was made to evaluate the effectiveness of the guidance rooms.

Robert D. Furry has recently retired as Principal of the Springfield High School, Springfield, Illinois.

Some teachers were dissatisfied with the manner in which students had been divided among the guidance teachers. Subject centered teachers resented time taken from their classes for guidance-room meetings. Faculty members were not too well satisfied with the prepared materials. In May 1958 the faculty requested that the guidance program be evaluated by a guidance specialist who would study our needs and recommend a better approach.

In the spring of 1958, the principal applied to the NASSP Commission for funds to secure the services of a guidance consultant. The request was granted and the service of a consultant was secured in the summer of 1958. The consultant, a university professor of education and a national authority in the field of guidance, met with the faculty at Springfield High School and outlined the nature of the research. After September 1958 he made one or two visits to the school each month.

OBJECTIVES OF THE PROGRAM

Essentially, it was our hope that a better guidance program could be established in our school through the cooperation of faculty, counselors, administration, and a guidance specialist. We wanted answers to the following questions:

1. What grouping of students in guidance rooms would be most effective?
2. Who should assume the responsibility for the material to be used by the guidance teacher?
3. How can we win better acceptance of a guidance program by faculty and students?
4. How can we use our staff effectively for group guidance without weakening our subject instructional program?
5. What additional guidance services are needed at Springfield High School?

The university consultant suggested that we add the following objectives to those listed above:

6. How can the guidance room be a basic unit in student government?
7. Was our testing program adequate?

STEPS TAKEN IN THE STUDY

1. Bimonthly meetings were held with the university consultant, a specialist in guidance.
2. A faculty guidance committee was created.
3. Questionnaires were prepared for both faculty and students to evaluate the work of the guidance rooms and to indicate additional guidance services needed.
4. In-service guidance training of the faculty in the philosophy justifying group guidance was provided.

THE STUDY IN 1958-1959

The first step was to organize a guidance committee. Counselors and teachers with a keen interest in guidance were selected for the com-

mittee. The committee met with the consultant and decided to use a questionnaire to determine the faculty attitude toward grouping of students and the amount of time to be devoted to guidance. The majority of the faculty voted to select one of their classes for their guidance-room group and meet with them for thirty minutes once a week. The fifty-six guidance rooms were divided among six administrative staff members so that no supervisor had more than ten teachers to assist.

The consultant suggested that the material to be used in the guidance rooms should be prepared by teachers who had been successful in using a particular topic the previous year. This material was then placed in a folder and distributed to the faculty members. The students were asked to suggest the topics for discussion from the material on hand. However, they were not limited to the prepared topics, but could suggest subjects for study that were vital to their interests. The prepared materials contained such topics as:

- Selecting an Occupation
- Autobiography of the Future
- Your Manners Are Showing
- Practical Discussion of College Life
- Grades
- Teenage Driving



Our Staff Utilization Study convinced the student council that guidance room representatives should have an active part in student government. Lively discussion preceded the adoption of a two-house system of representation.—Springfield (Illinois) High School

Our Student Activity Program
College Requirements
Let's Take Pride in Our School

The faculty met with the guidance specialists for in-service training and help with their guidance-room problems. Material was prepared for their use. "An Autobiography of the Future" was suggested as the starting project for the guidance rooms. Directions were given in "The Organization of Guidance Rooms" and "General Information for Guidance Room Instructors." The latter stated that the guidance room seeks: (1) the optimum development of the individual student; (2) to encourage and develop worthy and intelligent leadership and "followership"; and (3) to develop desirable civic-social attitudes in students and to provide opportunities for their practice in school situations through assumption of responsibilities and the development of group loyalty.

Another objective of vital interest to the students was the re-organization of the student council. Many students felt that the student council was run by a clique that did not represent the majority of our student body. After serious discussion, the council decided to allow each guidance room to send an observer to their meeting. After much debate and with some reluctance, the constitution was changed to provide that in the future there would be a two-house student council, in which one house would be composed of guidance-room representatives and the other house of representatives elected from each class at large. The guidance-room representative will invite discussion of student council problems and carry back to the council the viewpoint of his constituents.

CONCLUSION

A questionnaire distributed in February of this year to the fifty-six guidance-room teachers revealed that thirty-nine said they had received useful suggestions for organizing a guidance room. Twenty-five felt that the program had accomplished all that could be expected at that time. Only two of the fifty-six reported that the guidance room had been a waste of time for their groups. This was the reaction from a faculty that the previous year had petitioned for the abandonment of the home rooms.

One teacher commented that we had "started faculty thinking through what can be accomplished in a guidance room" and "faculty was finally alerted to the fact they have a responsibility for group guidance and it is reasonable to expect constructive results."

I feel that our guidance rooms now have faculty and student support and will continue to strengthen the guidance program at Springfield High School. Certainly the student council has been improved by providing a broader base for representation. Morale of counselors is higher now because the faculty is taking an active part in the guidance program. The university consultant gave us the training and confidence in our program that made this Study worth while.

An Experiment in Staff Utilization with Talented Students in a Small High School During the Summer Months at Newark, Illinois

RAYMOND H. QUENSEL

HOW do your talented students spend the summer months? Newark administration and faculty and the Commission on Staff Utilization for Secondary Schools were justified in believing that able students would work with enthusiasm in narrow areas of high interest in the general areas of mathematics, science, and communications.

PURPOSES

The purposes of the experiment were to provide challenging educational opportunities for students of a small school who seem to have abilities and talents and to utilize better a portion of our staff.

Objectives: Some of the objectives were:

1. To increase the range of knowledge and skills
2. To develop alertness
3. To develop attitudes of critical thinking
4. To develop the knack of working independently—to plan, to execute, to judge
5. To develop ability to share in undertakings
6. To develop leadership

WHAT WE DID

Pupils who wished to enroll in our project indicated interest in the general areas of science, mathematics, and communication. The students worked at their own pace, exploring with capable instruction their own interests. They used materials not normally available to small high-school students, things like rockets, language records, library cataloguing methods, and emergency first aid and blood typing equipment. One group shot a rocket up in Newark. Another group began a speaking-knowledge study of Spanish. Some read historical and scientific biographies, concentrating among other things on unusual new words to build up vocabulary. Modern algebra—the kind where parallel lines do meet, but at infinity—occupied hours for another study group. The

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Newark Fire Department's emergency truck was ransacked for devices that might have a bearing on their thirst for scientific knowledge.

No formal classes, as such, were conducted. Each morning at 8:30 A.M. students met together for a general session where common problems, aims, objectives could be discussed, after which each student followed his area of interest until 11:30 A.M.

Each learner was encouraged to work independently in some desired area with staff members available as consultants, accelerators, and stimulators of the learning process. Staff members spent the afternoon planning for Johnny's anticipated hurdles and making notes on the morning's experiences.

STANDARDIZED MEASURING INSTRUMENTS

Considerable data were gathered some of which is "before" and "after" test scores. Three basic tests were used:

1. *California Short-Form Test of Mental Maturity*, Secondary Grades 9-13, 1957, S-Form.
2. *School and College Ability Tests*, copyright 1957, Cooperative Test Division, Educational Testing Service.
3. *Sequential Tests of Educational Progress*, copyright 1957, Cooperative Test Division, Educational Testing Service.

The "before" test of the *California Mental Maturity* was administered on June 16, 1958, and the "after" test was taken July 18, 1958. Table I shows the amount and direction of the change.

TABLE I. Before and After Scores Showing Amount and Direction of Change in California Short-Form Test of Mental Maturity, Secondary Grades 9-13, 1957 S-Form

Student	Sex	Age in Years & Months	Before	After	Deviation
a	F	14-3	130	147	17
b	M	15-6	126	132	6
c	F	15-8	120	121	1
d	F	14-4	116	127	11
e	F	18-0	117	122	5
f	M	16-10	117	122	5
g	F	15-1	117	125	8
h	F	13-11	120	118	2
i	M	13-9	110	127	17
j	M	14-4	114	121	7
k	F	14-3	114	118	4
l	F	14-4	113	117	4
m	F	15-7	102	116	14
n	F	15-3	106	110	4
o	M	17-7	104	112	8
p	F	14-8	106	111	5
q	F	13-11	95	98	3
r	M	17-6	93	102	9
s	M	15-0	74	75	1

The level of probability for this test is .001. It is very noticeable that the I. Q. changed in a positive direction in every instance except one. This was not the case in the *School and College Ability Tests*.

Table II shows a rank correlation between intelligence quotient and ability to do school work. We administered the *School and College Ability Test* on June 24, 1958, and July 24, 1958. The *Spearman Rank Correlation Coefficient Tests* were used and the one-tailed test of significance level of .05 was used to determine significant.

TABLE II. Rank Correlation
Between I. Q. and Ability

Student	Rank in I. Q. Test	Rank in Seat Test	Deviations in Rank Between I. Q. Test and Seat Tests	Deviations Equal d^2
a	1	4	3	9
b	2	5	3	9
c	3	1	2	4
d	4	10	6	36
e	5	2	3	9
f	6	3	3	9
g	7	6	1	1
h	8	12	4	16
i	9	7	2	4
j	10	11	1	1
k	11	14	3	9
l	12	13	1	1
m	13	8	5	25
n	14	9	5	25
o	15	15	0	0
p	16	16	0	0
q	17	18	1	1
r	18	17	1	1
s	19	19	0	0

$$d^2 = 160$$

$$r = \frac{1-6 d^2}{N(N^2-1)} = \frac{1-6(160)}{19(19^2-1)} = \frac{1-960}{19(360)} = \frac{1-960}{6840}$$

$$.8595 = 1.000-.1405$$

When N is 20 for a one-tailed test and the significance level of .05 is used, the correlation of .377 or more is considered significant. The coefficient of correlation in Table II is .8595 which is significant. Therefore, one of the findings of this study was that there is a very significant correlation between the I. Q. and the ability of this particular group.

Table III indicates the amount and direction of change in each of the six areas of the STEP test. You will notice that the averages for the Reading and for the Listening seem to be significant. This also compares favorably with the level of significance shown on the table.

STAFF EVALUATION

The consensus of the staff was that the students adjusted well to the techniques used and definitely matured in attitudes toward study habits.

The staff also felt that the knowledges and skills of the students increased as much as or more than their expectations, and an examination of the data indicated a gain in achievement considering the shortness of the program.

BOARD AND COMMUNITY LEADERS' EVALUATION

The cost to the district was not excessive and should decrease in each succeeding year. Forrest Christian, President of the Board of Education said in a letter: "Without exception the reports coming to me concerning this program have been favorable. These comments have come from students, parents, and the teachers that participated in the experiment. . . . The school's experiment did not interfere with the custodian's summer work. Requests have been made for the continuation of a similar program next year."

TABLE III. Summary of Data Showing Amount and Direction of Change in 6 Areas of Step Test

Student	Reading	Writing	Listening	Social Studies	Science	Mathematics	Total Change
a	-3	-18	3	13	-6	4	-7
b	10	11	16	-4	9	1	43
c	9	-13	10	9	-3	-1	11
d	20	-20	7	1	-18	0	-10
e	1	-16	12	14	16	-4	23
f	9	24	2	6	-5	-1	35
g	0	10	-16	0	-4	6	-4
h	-7	-14	0	15	8	-11	-9
i	11	0	7	3	2	9	32
j	-3	2	3	0	-6	0	-4
k	8	-5	4	-3	-2	-15	-13
l	17	-2	10	2	3	3	33
m	-16	-5	-11	-10	-5	4	-43
n	-3	11	-2	1	-1	-2	4
o	-1	-1	-8	2	5	-4	-7
p	12	12	7	8	4	11	54
q	-2	-23	0	-12	-2	-19	-58
r	-5	4	0	3	5	4	11
s	12	23	13	8	23	47	126
Total	69	-20	57	56	23	32	217
Average	3.63	-1.05	3.00	2.95	1.21	1.68	11.42
Level of Probability	989	989	194	726	999	998	999

CONCLUSIONS

As a result of the study the following conclusions seem to present themselves.

1. The tests seemed to indicate a greater change in the intelligence quotient than in achievement.

2. A number of students are willing to spend time during the summer months to attend school when they are convinced in their own mind that meaningful learning experiences await them.

3. A study such as this probably should be conducted for more than six weeks. Ten weeks would have been more profitable.

4. Educational leadership by the chief administrator is valuable. (A change in leadership at Newark caused the program to cease as preference was given to working with an architect on an addition to the physical plant.)

5. The time consumed in testing was excessive.

6. Staff members were utilized during the summer months.

7. Building facilities can be used during the summer months if no major repairs are necessary.

8. Student can and will work independently at their own speed under the tutelage of expert teachers.

APPENDIX A: *Expenditures for the Experiment in Staff Utilization*

The following listed expenditures are not considered complete in as much as the proportionate share of the custodian's salary and the proportionate share of the office secretary's salary is not included. These two people devoted almost eighty per cent of their time to work concerned with the program. The board of education decided to pay the salaries of these two people and not to charge any part of their salaries to the summer experiment.

Salaries for Teachers	\$2,125.00
Salary of Supervisor	500.00
Tests	140.21
Library Materials	1,598.82
Mileage and Travel	300.23
Miscellaneous	38.27
TOTAL EXPENDITURES	\$4,702.53

APPENDIX B: *Information and Reaction of Members of the Board of Education and Community Leaders*

Each member of the seven-man board of education, the mayor, and the president of the Lion Club of Newark were asked to mark the following information sheet.

REACTION OF MEMBERS OF BOARD OF EDUCATION AND COMMUNITY LEADERS

1. Are your impressions of the program favorable/unfavorable?	<i>Favorable</i> 9
	<i>Unfavorable</i> 0
2. Do you feel that the students benefitted from this program?	<i>Yes</i> 9
	<i>No</i> 0
3. The small cost to the taxpayers far exceeded the educational growth received by the students.	<i>Yes</i> 2
	<i>No</i> 7
4. I feel the experiment should/should not be repeated next summer.	<i>Should</i> 9
	<i>Should not</i> 0
5. What changes, if any, would you suggest?	
a. No changes for my part but would like to see it expanded and encouraged.	
6. Other comments.	
a. I am happy that Newark was selected as one of the schools to be in the experiment.	
Mr. Quensel is to be congratulated.	

APPENDIX C: *Letter Comments by William F. Banister*

The idea of an unstructured, informal type of program sounded interesting and proved interesting. The students and instructors seemed to enjoy the chance to center attention upon academic ideas without the usual limitations of the formal class situation.

There were areas in which improvement could be made; there were unexpected interests; and the instructors were given an unusual chance to experiment with informal teaching and learning methods.

The few faults I found with the program were not great, but their correction would have proved helpful. These faults are listed below in order of relative importance.

1. The testing phases took up almost a third of the total time. The testing program might profitably have been streamlined, or the program extended a week or more.

2. The unlimited scope of the program was not realized by some of the students until after the start of the program. If a pre-program conference with the students had been held better to inform them of the loose limits, more might have been accomplished.

3. There was some difficulty involving the overlapping of courses. Some taking languages or mathematics were prevented from joining science fields of interest because of simultaneous timing (and *vice versa*). Better correlation, and perhaps use of afternoon time, would have aided in reducing such conflicts.

4. In the fields of electronics and rocketry, some of the work was handicapped by the time delay in acquiring needed materials. This might be an inherent fault of this type of program, though I believe the conference, suggested under number two above would have reduced this problem a bit.

There were many rewarding aspects of the program. The informality seemed to encourage attention to actual fundamentals, rather than to the demands of a grading system. Movement from science field to another helped to show their interrelation. Some actual needs for subject information were easily met without the necessity of plowing through other things to get to it. The girls and boys seemed to respond to the intellectual "tickling."

The program was sufficiently worth while to recommend enthusiastic support.

10-10-1958

/S/ WILLIAM F. BANISTER
Lake Forest Academy
Lake Forest, Illinois

APPENDIX D: *Letter Comments by Sherwin Gilbertson*

My impressions concerning the staff utilization program at the Newark Community High School in Newark, Illinois, during the summer of 1958 are summarized in the following paragraphs.

Our program emphasized independent study without formal grades or credit for work completed. It seemed to be an ideal learning situation

with students progressing at their desired speeds. It is apparent, however, that the most capable students need supervised drill in order to avoid glossing over fundamentals.

There seemed to be a high positive correlation between the length of the interest span and the mental ability of the youngster. I discovered that a higher degree of interest could be generated by introducing novel ideas concerning applications of mathematics. It seemed to be an effective means of starting them each morning.

The students tended to stay in the conventional areas of mathematics unless guided into other areas. The higher the I. Q. the greater the interest shown in the theoretical mathematics, such as logic and set theory as found in Boolean algebra.

The teachers were considered educationists rather than taskmasters and disciplinarians and readily established rapport with the students.

The teachers benefited in several ways; namely, they were enabled to experiment in methods of presentation and organization without the necessity of meeting established academic requirements; they were free from the tedium of clerical and classification work; it developed a critical attitude on the part of the participating teachers as to the teaching methods and curriculum content and organization; the teachers were kept in close contact with their subject matter field both in practice and theory.

The program seems to have carried over a strong positive interest in academic achievement and many students have indicated a desire for a continuance of the program. This interest is also exhibited by the adults in the community. I certainly wish to commend Mr. R. H. Quensel for his efforts in initiating this program in our school. I certainly look forward to further participation in such a program.

10-27-1958

/S/ SHERWIN GILBERTSON
Mathematics Instructor
Newark Community High School

Final Report on the Westside High School Teaching-By-Tape Project

MRS. R. E. GIBSON

PRESENT STATUS OF PROJECT

AS A result of three years of experimental tape teaching in the junior high school of Westside Community School of Omaha, Nebraska, the board of education and the administrators have elected to continue experimentation at the district's expense. The projects are as follows:

1. All fifteen seventh-grade classes are being taught their spelling and penmanship in a single twenty-minute broadcast by a single tape recorder plugged into a hi-fidelity PA system. If rebroadcasts are necessary due to scheduling difficulties, a clerk in the office or a student from one of the classes can handle the replay.

Allowances for individual differences are made by holding the pupils with high spelling achievement records for supplemental lists in addition to the tape work. Pupils with less than seventh-grade spelling records will be given extra remedial lists in addition to the tape. Pupils exceedingly retarded in spelling will be given individual attention by the teacher in the "time saved" him in using the tape for the rest of the class.

2. All seventh-grade classes are being taught their conversational Spanish for junior high school by means of a 15-minute broadcast each day through the PA system by the Spanish supervisor. These broadcasts from the central office are a mixture of "live" microphone teaching and pretaped lessons bringing to the pupils various native Spanish voices.

The fifteen-minute broadcasts are followed by 5-10 minute drill periods by the pupils' own teacher who may have learned Spanish previously, but more often than not is learning Spanish during the broadcasts with his or her students.

Once every two weeks the same Spanish supervisor visits each class to check on pronunciation, to answer questions, to initiate individual projects, and to bring in play-type materials (instead of too many written tests) to give the pupils an opportunity to show how well they have learned the lessons given over the PA system.

Mrs. R. E. Gibson is Director of the Project. She was assisted in this report by Kenneth Hansen, Principal of High School; Rene Hlavac, Principal of Junior High School; and H. Vaughn Phelps, Superintendent of Schools, Westside Community Schools, District 66, Omaha, Nebraska.

3. A music appreciation course is sent at one time to all seventh-grade sections twice a week. Most of the program is taped but introductions and comments are often by microphone.

STATISTICAL REPORT OF SPELLING BY TAPE—THIRD YEAR

Meeting the Needs of the Individual Student Where One Grade Level of Tape Is Used Throughout the Year.

An inspection of the scores of the previous two years of spelling-by-tape in grade seven revealed, as had been expected, that the growth of pupils whose achievement scores in spelling matched more or less their grade level was very adequate; whereas the pupils of low or high ability made lesser gains. In the former case it was quite obvious that the seventh-grade list was too long and too difficult for pupils of very low initial spelling achievement. On the other hand, the better students needed the challenge of a harder word list in addition to the taped seventh-grade lessons.

In the school year 1958-59 emphasis was placed upon giving the same seventh-grade tape to all classes, but holding the more able pupils responsible for learning all or part of an eighth-grade word list on their own time. This second list was not tape-taught, but the pupils were urged to use somewhat the same technique as used by the tape, with emphasis on writing and rewriting the words under differing circumstances.

Average or near average students used the seventh-grade tapes only. The less able students used the seventh-grade tape daily but in addition were given an extra short spelling lesson each day over sixth-grade words or words missed on daily papers.

The end of the second semester results of a series of comparisons between teacher-taught and tape-taught spelling classes were as follows:

1. A high-level ability experimental group taught by tape (with the supplemental eighth-grade word list) was compared with a high-level-ability control group taught the same seventh and eighth grade lists by their teacher. The analysis of co-variance reveals that the two means (adjusted for beginning score and I.Q.) differ significantly at the five per cent level of confidence in favor of the so-called tape-taught group. It was concluded, therefore, that there were 95 chances versus 5 that the tape-taught (plus supplemental eighth-grade word list) group excelled.
2. The high-level-ability experimental group taught by tape (with the supplemental eighth-grade word list) was compared with a cross section of other ordinary spelling classes which included one heterogeneously grouped class, one high, and one medium-ability group. After the means were adjusted for differences in beginning score and I.Q., the mean of the so-called tape-taught group exceeded the mean of the cross section group that had been entirely

teacher-taught as indicated by the F-value of 8.5467. This difference was found to be significant at the 1% level of confidence. It was therefore called *highly* significant since there were 99 chances versus 1 that the tape-taught group excelled the teacher-taught.

3. Two relatively low ability groups were compared. One had used the seventh grade tapes plus a sixth grade word list made up of words actually missed by members of this group in written tests and daily papers. This was the experimental group. The control group studied under its regular classroom teacher according to any method or list its teacher found advisable. From the analysis of co-variance it was apparent that the difference between the means of these two groups was not significant. It was therefore concluded that there is neither advantage or disadvantage in using spelling tapes with the slightly below normal pupils other than the amount of time saved the teacher for other activities while the tape lesson is in progress.
4. To evaluate the total effectiveness of the 1958-59 tape teaching experiment, the two experimental groups (high and low) having supplemental lists were combined to form one large experimental group and the various control classes were combined to form one large control group. The analysis of co-variance reveals that the difference between means, after adjustment, was highly significant; that is significant at the 1% level of confidence in favor of the two tape-plus-supplemental-list groups.

Thus it was concluded by the statistical department of the college of Education at Nebraska University that an overall advantage resulted from the tape experiments carried on during the 1958-59 school year in spelling at Westside Community Schools.

FINDINGS OF THE THREE-YEAR STUDY OF TEACHING SPELLING BY TAPE

1. Spelling can be taught at the seventh-grade level as *effectively* to far more effectively by tape than by a regular classroom teacher using the same word list or current spelling books.

2. Even better results can be obtained by assigning extra word lists to the better students. *Extremely* low students should have individual attention from the teacher.

3. Spelling tapes can be made in such a way that the class can function automatically without any supervision by the teacher. This does not mean, necessarily, that the teacher should make a point of being out of the room the whole spelling period each day. It means that she has an opportunity at this time to busy herself with other tasks such as correcting other papers, bulletin board work, or giving individual attention to the one or two pupils who may have come into the seventh grade with a spelling achievement of a second- or third-grade pupil. These pupils will not be helped very much by a regular seventh-grade tape.

4. Spelling can best be taught to large groups without incurring discipline problems by leaving the classes in their own classrooms and delivering the lessons by individual tape recorders in their own rooms or by sending the lesson to several rooms at one time by the PA system.

5. The cost of regular textbooks can be saved in seventh-grade spelling by giving the pupils six- or seven-page mimeographed word lists. (Pupils may buy extra lists for home study.) The tape can be made to give all the explanations usually given in textbooks.

REPORT OF CONVERSATIONAL SPANISH BY TAPE—THIRD YEAR

Conversational Spanish by tape was not put on a statistical comparison basis this last year. The previous two years had indicated that score-wise the tape was doing a very satisfactory job. The community had indicated that it was very much interested in a language program that would not only include junior high students but would also start at the third grade. Conversational Spanish by tape in the seventh grade was made a permanent part of the curriculum. Emphasis was put this third year on the experiment on making the course even *more* attractive to the pupils and seventh-grade teachers who presumably knew no Spanish at the beginning of the year. It was also decided, because of scheduling difficulties in the eighth grade, to try a different approach to Spanish in this grade.



A closed circuit audio junior high-school Spanish class. Students read aloud in chorus following the native speaker on tape. The tape recorder is in a distant room being run by a regular Spanish teacher who adds live comment from time to time by microphone. Sound comes into the room through two permanently mounted loud-speakers. An intercommunication unit allows the teacher in a distant room to listen in on recitations and make corrections. As of last fall, Westside had installed a new hi-fidelity system through which it is attempting to teach fifteen seventh-grade classes at one time their conversational Spanish course, Spelling, and Music Appreciation.—Westside School, Omaha, Nebraska

In grade seven in addition to the twenty-minute Spanish program each day, every class was visited once every two weeks by a Spanish supervisor. She brought in novelty items that had not appeared on tape such as songs, dances, and puppet dialogues. The interest and enthusiasm of all classes was very visibly affected. The teachers assumed a new confidence. Under this arrangement one supervisor could easily handle seven or eight visits a day for the ten work days of the two weeks or seventy to eighty classes on a once-every-two-weeks basis.

In grade eight pupils coming up from the seventh-grade program were encouraged to volunteer to take Spanish one hour early in the morning before their regular classes began. They were to do regular first-year high-school Spanish work under a regular high-school teacher. If at the end of the year they had an average of 4 or above (82-86%) or had scored above the 50th percentile in a standardized Spanish test, they were to receive high-school credit and could register for second-year Spanish in their freshman year. Thirty-two started the course. Five dropped out the first week because of the press of other subjects, one was dropped during the year for low Spanish grades, and two moved away. Twenty-four received high-school credit for the Spanish taken as eighth-grade pupils and were reported as being at the top of the present year's advanced Spanish classes. Their scores in the standardized Spanish tests last spring were better than either of the regular Spanish classes which is quite understandable in that they were a select group. This program was so successful that during the present year there are three classes of thirty each taking regular high-school Spanish as eighth-grade pupils.

FINDINGS OF THE THREE-YEAR STUDY OF TEACHING SPANISH BY TAPE

If a school district can secure the services of qualified Spanish teachers, especially native speakers, and can afford to pay for one full-time visiting teacher per fifteen classes to be visited two or three times a week, perhaps schools desiring to initiate an elementary school foreign language program should not consider a tape program. Few schools, however, can secure the number of qualified teachers needed for a full program. Again the bill for one teacher at the elementary- or junior high-school level per fifteen classes is high.

It has been found that in *certain areas* the use of tape can, without injurious effects, wholly or partially take over the job of the trained linguist, leaving the guided drill work for the regular classroom teacher who may or may not have learned the language previously. This means that although the services of a foreign language visiting teacher or consultant are highly desirable for all classes, her services can be stretched by the judicious use of tape to cover up to four times as much territory as possible without the tape. Of course, there is the cost of tape, one

machine per four teachers, and about \$8.50 worth of repairs per year to partially offset the salary savings. (Much of this expense may be avoided if PA teaching proves satisfactory.)

The following findings are largely statistical findings from analyses made by Nebraska University. A few, however, are the result of subjective observation on the part of the director, the principals, the coordinators, and the classroom teachers themselves.

1. Children below the third grade do not respond well to twenty-minute language tapes prepared by an outsider. Length of attention span may partially explain this.

2. High ability third-grade pupils, if their teacher knows no Spanish but is eager to learn with her pupils, can make good use of the twenty-minute-daily Spanish lessons by tape. Their advance is somewhat slower than the upper grades. Occasionally their teacher will have to take extra class time to explain a new grammatical term such as "adjective."

3. Because most third grades are not made up entirely of high-ability students, and because not all third-grade teachers are anxious to add another subject to their teaching load—especially an unfamiliar one—it seems advisable to rely mostly on a traveling teacher who comes in for thirty or forty minutes two or three times a week and does the actual teaching herself.

4. As pupils' attention span grows, it is possible to add more and more tape teaching in each grade up to the seventh grade where the tape does the whole teaching job. Even in this grade a visiting consultant once every two weeks is highly advisable.

5. Seventh-grade pupils at the beginning level do very satisfactory work when taught conversational Spanish five twenty-minute periods a week by tape. There is no significant difference between experimental classes that have been entirely tape-taught with their regular classroom teacher not knowing Spanish, and control classes taught the same material by their own classroom teacher who has had Spanish training. This applies to written and oral measures of competence. Some seventh-grade classroom teachers using the taped lessons can obtain the same scores in testing as qualified Spanish teachers. This in spite of being wholly untrained themselves at the beginning of the year. All teachers, however, will not do as well as the trained Spanish teachers.

6. In grade seven (beginning level), the addition of a qualified Spanish teacher visiting each tape-taught class not more than once every two weeks serves to raise pupil interest and to give the untrained teacher of Spanish more confidence in the program. The visiting qualified teacher seldom handles the tape but reserves her visit for answering questions, initiating new projects, and introducing game situations (instead of too many written tests) in which pupils can test their mastery of the material they have learned by tape the previous two weeks.

7. In seventh-grade classes composed largely of low-ability pupils, Spanish should not be withheld because of social stigma. The classroom teacher can play and replay materials proceeding at a very slow pace. If the pupils express an avid dislike for the language, the taped lessons should be stopped with the explanation that this time is needed for other subjects; however,

the consultant bringing in lists to be learned such as the names of months, the names of clothing, the names of animals, and simple commands will continue to evoke some interest. In this manner the stigma of being too dull to learn the language is avoided, and the pupils are not taxed beyond their ability to comprehend.

8. Some low-ability seventh-grade classes are very fond of their Spanish lessons. These pupils should be carried along at a slow pace. Under no circumstances should they aim to go into regular high-school Spanish at the eighth-grade level. It should be explained to them that only classes which are able to finish the seventh-grade course by the end of the year will be eligible.

9. In heterogeneously grouped seventh-grade classes, pupils of very low mental ability tend to get discouraged. They should be retained as part of the class until they declare that they no longer like Spanish and become discipline problems. When this occurs, they should not be screened away from the rest of the class to work by themselves at other subjects, but should be given workbooks for social sciences, arithmetic, or other such subjects. They should be given to understand that although the Spanish class is going on around them, they are no longer part of this class and are expected to keep working on their workbook materials without leaving their seats or interrupting the Spanish class to ask unnecessary questions.

10. A second year by tape in the eighth grade can be carried on successfully by tape under certain circumstances; however, it seems a better use of the pupil's time to enroll him in regular high-school Spanish carrying full high-school credit while he is still in the eighth grade. If he completes this satisfactorily (usually with a grade of 82% or above), he may enroll as a regular second-year Spanish student on entering high school.

11. At the beginning level mimeographed booklets including only skeleton outlines of the vocabulary to be learned take the place of regular textbooks. The tapes can be made in such a way that a voice gives all the explanation usually included in a text. Eventually, after several months' work with the tape, seventh-grade pupils should have easy reading material that may be mimeographed with new vocabulary at the bottom of each sheet. Pupils buy their own pocket Spanish dictionaries. Teachers may prefer to use easy Spanish readers at this time.

12. Spanish tapes should be designed in such a way as to evoke maximum pupil participation. A flat lecture type tape seems unable to hold the undivided attention of junior high-school pupils.

Some Conclusions Drawn from the Snyder, Texas, Project

WM. O. NESBITT
PALMER O. JOHNSON

THE final year of the staff utilization project in Snyder saw several major changes in the plan of operation. These changes were based on findings from data collected during the first two years of the study. A detailed description of the Snyder Project can be found in the January 1958 and 1959 BULLETINS of the National Association of Secondary-School Principals. The changes are those dealing with personnel, scheduling, and the use of modern aids in the teaching-learning situation.

In regard to changes associated with personnel, the formation of teacher-teams in each subject area was the most significant. Also, each team was provided with twenty hours of clerical assistance per week—a reduction from the preceding year. A three-week workshop for both teacher-teams and clerical aides permitted teamwork to be developed while getting a head start planning and organizing the subject matter.

The scheduling of the experimental groups in a typical six-period day was done in such a way that each teacher-team was allowed two periods for team planning. Because of the available space and its arrangement the experimental project was limited to general science and biology at the high-school level and to eighth-grade language arts (a double-period subject) at the junior high-school level. Both large and small rooms were provided for the large *experimental* groups so they could meet at any time in any size group the teacher-team desired.

A noticeable shift in emphasis on modern teaching aids occurred in 1958-59 as a result of findings from the preceding year. The redeployment of staff and students permitted teachers to prepare better lessons for presentation to the large groups. The overhead projector became the basic tool of communication supplementing the voice. The industrial-type closed circuit television was relieved of the enormous load it had carried the previous year. It was used only when it was the best medium teachers had to convey information to students.

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THE NATURE OF THE PROJECT

The Snyder project proposed to test the hypothesis that teaching the same students in large groups (70-100) part of the time and in small groups (12-15) and individually the remainder of the time is more economical of both money and teacher time and more productive educationally than the methods usually associated with teaching classes of 25 or 30.

Although the project dealt with new approaches to teaching and learning, the subject matter involved was not experimental. Teachers of identical subjects were scheduled to meet classes at the same periods so they would be free to work as teams in planning and teaching. Each teacher had the usual teaching load. Provision was made for team-teaching, clerical assistance, special audio-visual aids, and intensive supervision.

INTERPRETATION OF THE STATISTICAL ANALYSIS

The results of the analysis of the data collected during the 1957-58 school year were published in the January 1959 BULLETIN of the NASSP. The results of the retention tests given the experimental (large) and control (small) groups at the end of the summer vacation were not included in that report; therefore the findings from this analysis are reported here in Table I.

TABLE I. Results of the Retention Tests
May 1958-Sept. 1958

Table of Means

<i>Class Subject</i>	<i>Small</i>		<i>Large 1</i>		<i>Large 2</i>	
	<i>End Test</i>	<i>Retention Test</i>	<i>End Test</i>	<i>Retention Test</i>	<i>End Test</i>	<i>Retention Test</i>
Biology.....	19.4	20.6	17.7	20.4	13.9	13.6
General Science.....	29.3	28.9	24.88	25.75	21.9	24.2
English:						
Mechanics.....	83.9	81.9	83.2	84.5	78.2	77.2
Literary.....	15.0	12.8	15.5	16.1	13.1	14.8

The means of the two groups (small and large) in each subject area were adjusted for any inequalities existing in the scores on the final test given at the end of the experimental period in May 1958. Thus, it became possible to compare the means of the retention scores (administered in September 1958) freed from the differences existing between the two groups on the final tests.

When one refers to Table I, he finds that the students did not lose anything they had learned in biology the previous year. The small class and one large class showed a small but not significant gain. Analysis of variance and covariance reveals that, on the average, the retention of what was measured on the end test did not differ in the large and small classes.

In general science, we found practically no loss of learning in either the large classes or the small one. In fact, a small gain was noticeable in Large Class 2. On the average, however, there was no significant difference in retentivity between the small and large classes.

In English (Mechanics of Expression), there was very little change from the end test (May 1958) to the retention test (September 1958). Specifically, there was a slight loss in the small class, a slight gain in Large Class 1, and a slight loss in Large Class 2.

In English (Literary Comprehension and Appreciation), there was a small loss in retention in the small class, a slight gain in Large Class 1, and a small gain in Large Class 2. The test of significance between the adjusted means of the large and small classes showed no significant differences.

REPORT ON THE EXPERIMENTAL FINDINGS: 1958-59

Three programs constituted the bases for experimental evaluation during the year 1958-59: biology, general science, and English, reading and spelling—a full-year eighth-grade language arts course of studies. It is specified that the comparative part of the experiment is the determination of differential effects between large and small class situations. The distinguishing features between the contrasted situations include teacher-teams, clerical aides, and materials of instruction. A highly important addition to the experiment of 1958-59 was the teacher-made tests. These tests were constructed by the teachers of the several school subjects with some technical assistance.

In each of the subject matter fields, the experimental, or large class, groups were taught by teacher-teams comprised of two teachers each. The control, or small class, groups were taught by the same teachers as individuals.

The first statistical analysis was applied to the results from each type of instructional situation in order to determine whether the class as a whole attained a significant growth over the experimental period. For this purpose it was essential to give the tests at the beginning and at the end of the experimental period. For each student of a class, the score on the initial test was subtracted from the final score giving a difference which was either a gain or a loss. The t-test for correlated data was applied to determine whether the mean gain or loss was statistically significant.

Another important analysis was to determine if the class of students became more or less variable or remained at the same variability at the end of the experiment as compared with their status at the beginning. To answer this question, a test of significance was made between the variances of the test scores at the beginning and at the end of the experimental period. The educational significance of a statistically significant change in variability lies in the observation as to whether or not a given educational treatment (*e.g.* the small or large class) brings

students closer together or separates them more widely during the instructional period. If students are separated more widely, the implication is that the particular instructional practices followed served to adjust better to individual student differences. The opposite would be the case if the students were brought closer together under a given instructional program.

TABLE II. Summary of the Results of the Teacher-made and Standardized Tests in Biology

Results	Teacher-made Tests					Standardized Tests				
	Con 1	Con 2	Ex 1	Ex 2	Ex 3	Con 1	Con 2	Ex 1	Ex 2	Ex 3
Did the class achieve a significant growth?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Did the class become significantly more variable?	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Relative effectiveness of the contrasted treatments*: (Large vs. small)	Low 235.8	High 276.3	238.5	245.3	245.9	Low 13.8	High 20.1	17.8	17.5	18.4

* Achievement was made in accordance with the ability levels of the students. The means of the high, middle, and low were 271.1; 246.2; and 221.1 on the teacher-made test and 25.3, 16.2, and 11.2 respectively on the standardized test.

Finally, if the data indicated that a significant improvement had occurred under any given treatment, then the relative effectiveness of the contrasted treatments was determined. Since there were two main factors (ability levels and contrasting treatments) operating that might have accounted for significant differences among the high, middle, and low ability subgroups, the analysis of variance for a two-way classification was used.

Another measure of the differential effect between treatments was given for retention after an interval of three months (May to September). Since the examinations measuring retention were given at the opening of school in September 1959, the results are not available for this publication. They will, however, enable us to find out something about the permanence of learning.

Achievement in Biology. The tests used to measure achievement in biology were the teacher-made tests and the *Cooperative Biology Test*. These tests were administered in September and in May. Two control (small classes) and three experimental (large classes) groups were taught by teacher-teams involved in the experimental comparisons. Table

II summarizes the findings. There was found to be a highly significant mean gain in biology for the two control classes and the three experimental classes as measured by both the teacher-made and the standardized tests.

The standardized test indicated that all control and experimental classes became significantly more variable. On the basis of the teacher-made test, significant differences were found in Control 1, Experimental 1, and Experimental 2. Thus, treatments in these classes adjusted to individual differences.

The relative effectiveness of the contrasting treatments was ascertained by pitting the two combined controls against the three experimental classes. It was noted that the teacher-made test was more appropriate, having been designed to cover the particular course offered. The scores on the standardized test seemed to be much more restricted. Analysis of the standardized test scores indicated no significant difference among the treatments, insignificant differential effects between the two treatments, and a significant difference among the ability levels. Analysis of the scores from the teacher-made tests indicated significant differences among the treatments, between the two treatments, and among ability levels. It may be concluded, therefore, that there was a significant difference in favor of the control groups on the teacher-made test in biology.

Achievement in General Science. The teacher-made test and the *Co-operative General Science Test* were used to measure achievement in the ninth-grade general science classes. The tests were administered as pre-tests in September 1958, as post-tests in May 1959, and as retention tests in September 1959 (these results are not yet available).

TABLE III. Summary of the Results of the Teacher-made and Standardized Tests in General Science

Results	Teacher-made Test					Standardized Test				
	Con 1	Con 2	Ex 1	Ex 2	Ex 3	Con 1	Con 2	Ex 1	Ex 2	Ex 3
Did the class achieve a significant growth?	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Did the class become significantly more variable?	No	Yes	No	Yes	No	No	No	No	Yes	Yes
Relative effectiveness of the contrasted treatments*: (Large vs. small)	Low 220.8	222.2	230.5	242.4	High 249.4	Low 20.6	21.2	23.7	24.8	High 30.7

* There was a graduation of achievement from the highest to the lowest levels of student ability. The means of the high, middle, and low ability groups were 268.3, 239.7, and 200.8 respectively on the teacher-made tests. They were 33.8, 24.4, and 16.6 on the standardized test.

There are two control (small classes) and three experimental (teacher-team large classes) groups. Table III summarizes the findings.

When the combined experimental evidence of the two control groups was compared with the combined evidence of the three experimental groups, the superiority was in favor of the experimental (teacher-team large class) groups. This was true for both the teacher-made and the standardized test data.

Achievement in Eighth-Grade English. The full-year eighth-grade English course of study comprises grammar, reading, and spelling. Two tests were used to measure achievement: *Iowa Language Abilities, Intermediate Form B* and the teacher-made test on spelling and grammar. Both tests were administered in the same pattern as previously described.

There were two control groups (small classes) and one experimental group (large class). Table IV summarizes the findings.

TABLE IV. Summary of the Results of the Teacher-made and Standardized Tests in Eighth-Grade English

Results	Teacher-made Test			Standardized Test		
	Con 1	Con 2	Exp.	Con 1	Con 2	Exp.
Did the class achieve a significant growth?	Yes	Yes	Yes	Yes	Yes	Yes
Did the class become significantly more variable?	No	No	No	No	No	No
Relative effectiveness of the contrasted treatments*: (Large vs. small)	305.5	293.3	314.1	215.0	205.4	217.0

* The first reversal of the study occurred when the mean of the low ability group exceeded that of the middle ability group. The difference was not significant, however.

When the ability levels (high, middle, and low) of the students were related to the contrasting treatments, it was noted that the mean of the experimental group was two points in excess of Control 1 and about twelve above the mean of Control 2. With respect to over-all treatments, it was noted that the highest mean was attained by the high ability group while the mean of the low ability group was about four score points above that of the middle ability group. This was the first reversal that has occurred in our study; therefore, an accurate report of the composition of this group as compared to those in biology and general science must be made.

The biology and general science groups were selected in a similar manner. Students taking the course were listed, a number was assigned to each, and a random sampling procedure was followed in assigning them to control and experimental groups. This, in effect, might be said to be a heterogenous group assigned at random.

The English group was a 'somewhat homogeneous (stratified) group of students assigned at random. This came about as a result of another study under way in the same building that required previous teachers of eighth-grade students to rate the ability of each student *to function effectively in the classroom* on a five-point scale. Standardized tests and academic grades were not considered at this time. The teachers were concerned only with how well the student worked and performed in classroom work.

As a result of this rating, the students were divided into three groups: high, middle, and low. At this point academic grades and standardized test scores were used to shift borderline students from one group to another. After carefully reviewing factors such as personnel, schedule conflicts, space facilities, and human relations, it was decided to use the 'middle' group in the staff utilization project in 1958-59. There were 122 students in this English group. Two controls and one experimental group were selected at random from that number. Inferences, however, cannot be drawn from the face values of the reported reversal. When the combined evidence of the two control groups was compared with the evidence of the experimental group, there were no significant differences noted.

SOME OBSERVATIONS BASED UPON THE STATISTICAL ANALYSIS

The experimental evaluation of instructional programs in the Snyder schools demonstrated that it is possible to compare the relative effectiveness of different programs on an experimental basis under school conditions.

The programs evaluated during the academic year 1958-59 reflect a progressive development over those of the previous year. The utilization of teacher-teams in large classes was an advancement growing out of the experiences and experiments of the previous years. Another important contribution to the efficient appraisal of the learning outcomes was the carefully prepared teacher-made tests. These led to the attainment of more valid and reliable measurements. It should be noted, however, that the use of standardized tests was still helpful in determining the properties of the teacher-made tests and in making a direct contribution to the evaluation program.

The resourcefulness of the participating teachers in developing new and promising educational ideas and operations cannot be over-emphasized. This was accompanied by a high display of scientific attitude toward experimentation.

An exceedingly important characteristic of all the programs under comparison was that each was conceived and carried forward at its best. This very likely explains why in both small and large classes there was a significant growth in learning in every class. There was also considerable evidence of the adjustment of instruction to individual

differences manifested by the findings that in almost all cases the most able students learned the most, followed by the groups of middle ability, and then by the less able. There was also the evidence of increase in variability of the students during the progress of the course.

From the standpoint of the comparisons of the alternative programs, the following conclusions were drawn:

In general science the mean achievements of the experimental groups (teacher-team large classes) all exceeded those of the small-size class groups on both the teacher-made and the standardized tests.

In biology there were significant differences in means in favor of the small-class groups on the teacher-made test. The differences observed were not statistically significant on the standardized test.

In the English it was noted that, while the obtained differences were generally in favor of the large classes, the differences in means were not statistically significant on either the teacher-made or the standardized test.

SOME CONCLUSIONS DRAWN BY PROFESSIONAL OBSERVERS

In addition to statistical evidence, information was gathered from lay and professional observers on an organized basis. A regular procedure set up to handle guests was carried out in detail by the teacher-teams. The final stage was reached in April when five teams from four major colleges and universities were invited to make specific observations in the Snyder project areas. These professional observers represented the liberal arts; however, two of the teams were made up of a combination of liberal arts and college of education personnel. Selection of the teams was made on the basis of suggestions made by teachers, recognition in their chosen fields, past experience in experimental work, and geographical location.

After being briefed on the written material about the project, the team arrived in Snyder in time for an informal discussion to clear up any items of concern. Each teacher-team then spent the entire day with one observer who was a specialist in the subject matter field. At the end of the day, a critique was held on a teacher-team basis. Later, a general critique was held with team members, clerical aides, and administrators in attendance. Finally, a written report was submitted by the observer after sufficient time has elapsed to allow for the preparation of an objective report. These critiques and written reports form the basis for the following comments about teacher-teams, clerical aides, and teaching materials:

One factor for the success of any single aspect of the project in Snyder is the interlocking support and strength given to the whole by the parts. It is impossible on the basis of the data collected in Snyder to say without doubt that one generalization about teacher-teams, clerical aides, and mechanical and electronic teaching materials is true when unaccompanied by all the factors operating concurrently.

Consequently, one is to be cautioned against hoping to achieve comparable results in any isolated aspect of this project without supplying all the factors that went into the making of its success. For example, it would be foolish to think that a teacher-team could produce as much professional planning and materials without the necessary clerical assistance, material aids, team planning time as provided by proper scheduling, and close supervision and encouragement. Also, it would be unusual for a group of teachers to maintain the extremely high level of morale and interest found among teachers in the Snyder project without providing for the removal of the deadening and energy-consuming non-professional activities traditionally assigned to teachers. Likewise, it is useless to hope that increased numbers of students can be assigned to a teacher without harming the instructional program unless all the factors that permit such an increase are present.

In spite of this, however, the following attempt to separate some of the things teachers and professional observers say about the project has been made. It is divided into three categories: teacher-teams, clerical aides, and materials of instruction.

Teacher-Teams

The teacher-team idea as applied in the Snyder Project involves three teams of two teachers each—general science, biology, and eighth-grade English (grammar, reading, and spelling). Combined with ten hours of clerical assistance per week per teacher and with a schedule that permits assembling students in large or small classes, this idea has a number of advantages over having each teacher work in isolation:

1. Each teacher is enabled to specialize on the part of the content which he knows and teaches best. The two teachers in each team are scheduled at the same period so that when the portion of content that one of them handles best is being treated, he can take both classes. Thus, the pupils profit from more superior teaching under this plan of specialization.

2. During a given week each teacher's daily load in terms of classroom hours is reduced by the number of times the other member of the team meets with both classes in a large group session. This occurs about twice a week, and this time added to the regular team planning time provided in the daily schedule gives the relieved member of the teacher-team opportunity to prepare more carefully for his own presentations. It would be difficult to over-emphasize the importance of this because during a crowded week many teachers simply do not have time to prepare their daily presentations adequately even though they may have taught a number of years.

3. The regularly scheduled open time each day at the same hour for the two members of the team enables them to work together, enriching each other's ideas and combining the materials developed by both to the profit of the class. Such cooperative planning pays off.

4. By providing large classes once or twice a week at the desire of the teacher-team, the plan enables all pupils to get the basic essentials that can be given to large groups at the same time and in the same manner. It has been found that some of the content in each high-school subject can be taught to very large groups as well as to smaller groups. The large group

sessions are followed by small group and individual concentration as well as by meetings of groups of the ordinary size. This provides the teacher with the long-denied opportunity to fulfill the responsibility of meeting individual differences among students. It makes possible a flexible and dynamic grouping of students on a day-to-day or week-to-week basis, depending on the particular abilities, backgrounds, and interest of students as related to the current subject matter. The usual objections to permanent groupings of any sort can thereby largely be avoided. Teachers think in terms of "our students" rather than "my class."

5. When one young teacher is placed with an experienced teacher on the same team, he experiences unusual professional growth during the first year rather than being forced to fumble around at the outset however well he might have been trained in college. Conversely, new teachers frequently have new data and ideas welcomed by the more experienced team member. Team-teaching deserves much consideration as a technique for in-service growth of teachers both experienced and inexperienced.

6. The morale that is generated in each team and the professional enthusiasm that comes along with it are considerably higher than that one ordinarily observes in the typical classroom or in talking with teachers who are not on teams. This is not to say that some teachers not on teams do not have high morale and high professional zeal, because superior teachers everywhere do.

7. Teacher-teams encourage the solution of problems, both small and large, due to cooperative effort. Two or more persons are not inclined to give up as easily as one.

8. It should be said that some people just do not want to work in teams with others. They have their own personal reasons for this, and those reasons should be honored. Consequently, no person should be forced to serve on a team who does not want to do so.

The Use of Clerical and Secretarial Aides in the Snyder Project

One of the most significant features of the Snyder Project is the use of clerical and secretarial aides to relieve teachers of many sub-professional activities. These aides come from the ranks of housewives who can use a typewriter and perform the usual routine office-type work. They have proved to be very competent, and, like the teachers, they have developed a high level of interest in the progress of the project.

1. Teachers are able to do a higher level of teaching by being relieved of such clerical tasks as mimeographing, preparing certain materials, checking rolls, grading objective tests, keeping records, taking care of the distribution and collection of grade cards, transcribing grades from the grade book to the grade card, assembling for classroom work the materials needed for the day, serving as the focal point for make-up work, and a number of other tasks that are highly important but need not be done by a person paid to teach. Only those services which require professional competence should be performed by professional teachers.

2. In addition to teaching better, the teachers are enabled to grow more in professional skill through enriching the content of their courses, trying out new techniques made possible by better planning, and by concentrating their entire energy on professional duties.

3. The use of clerical aides saves tax money. A simple problem in arithmetic makes this point clear:

- a. Ordinarily, a teacher meets about 125 pupils in her five classes per day.
- b. With ten hours of clerical help per week, each teacher can take care of five more pupils per class, or twenty-five per day, with the same or even less effort.
- c. One clerical aide on a forty hours week can serve four teachers, thus enabling the four teachers to take care of 100 more pupils per day.
- d. The 100 additional pupils cared for by the four teachers make $\frac{4}{5}$ of the 125 pupils met daily by teachers in the ordinary classroom. This means a saving of an amount equal to $\frac{4}{5}$ of one teacher's salary.
- e. If the average salary is \$4500 a year, this means a saving of \$3600.
- f. Clerical aides are paid \$1800 in Snyder, or $\frac{1}{2}$ of the \$3600. Thus, the remaining \$1800 is saved by providing one full-time secretary for four teachers at 10 hours per week per teacher.

Any board of education interested in saving tax money should give careful consideration to providing clerical aides to all teachers who desire to use them on this basis.

4. Since each teacher requires only ten hours of assistance per week, the supply of persons from which to choose aides is greatly increased without loss of efficiency. A great number of housewives want to work only ten hours per week, and this allows all of her time to be consumed by one teacher.

5. Clerical aides combined with scheduling that recognizes individual differences in interests and competencies among teachers allow teachers to devote the time of the day when they are at their physical and mental peak to such professional tasks as developing imaginative instructional aids, keeping up-to-date with the latest developments in their teaching fields, and improving evaluation.

6. Clerical aides allow teachers to make full use of evaluative techniques in an attempt to meet individual needs of students better than ever before.

7. Whether or not a clerical aide is used should be the choice of the teacher. Many teachers prefer to do all the tasks that are customarily necessary rather than being relieved of the clerical work involved in many of them. In such cases the teacher's preference should be honored.

The Use of Material Aids in Instruction

Inspired teachers, seeking always the most effective ways of bringing about high-level teaching-learning, do construct, collect, and use an amazing compilation of top-level audio-visual materials. Professional zeal and high morale result at least in part from the availability of these instruments of communication. The use of such aids at Snyder illustrates how education is gradually taking advantage of the inventions that have increased the efficiency of business and industry.

Modern communication devices coupled with proper scheduling and assistance enable teacher-teams to teach agreed-upon material to larger than usual classes in a most effective manner. When teacher time and initial cost are considered, however, the latest audio-visual aids are more adaptable to large-group instruction at this stage. This is not to say that the only thing a teacher of the usual-size class needs is a blackboard

and a piece of chalk. On the contrary, even though the following comments and observations deal largely with the place of television, the overhead projector, and the tape recorder in large-group instruction, the implication is that the teacher of the usual-size class can also make excellent use of them—and at a reasonable cost.

1. The TV camera projects small objects and microscopic materials magnified many times to any size group so that each student sees in large scale precisely what he is supposed to see, and, therefore, often understands it better than when an individual microscope is used.

2. Fundamental material is presented to large groups more vividly than it is usually presented in small groups in the ordinary classroom.

3. There is no problem of discipline in the large classes since there is a much higher degree of student interest than is generally found in classrooms.

4. Teachers conserve energy while improving instruction when modern communication devices as well as the conditions enhancing their use are present.

5. Drill becomes more intense and absorbing because the mnemonic devices are ingenious, imaginative, and effective.

6. The overhead projector allows for time-saving, effective, graphic presentation in such a way that any desired degree of contact between students and teacher can still be maintained.

7. The overhead projector enables the teacher to face the class while presenting material that has formerly been presented on the blackboard with much less effectiveness. The possibility of reducing or eliminating blackboard space and providing overhead projectors at the same or less cost should be considered. The usual teacher can learn to use the overhead projector fairly well within a few weeks and within a year can develop considerable proficiency.

8. Students seem to feel the need for paying closer attention when electronic and mechanical aids are used. Concentrated and fast handling of audio-visual aids eliminate the possibility of the students' attention deviating excessively from the subject matter presented.

9. Lesson plans have taken a new look in Snyder. Teacher-teams have turned to a pocket chart for organization and to a series of slides of their own design for the overhead projector for presenting basic materials. The chart contains thirty-six pockets separated into the four nine-weeks periods of the school year. Each pocket holds cards with notations about lessons planned by the teacher-team for each week. Colored slips suggest grouping arrangements, teaching techniques, instructional materials, and evaluative devices.

10. The overhead projector allows the teacher to develop a whole series of ideas in the form of slides and overlays. Thus, the basic idea is on the first slide, the second can be added by flipping on an overlay, the third by a similar process, and so on. The sequence can be reviewed immediately by returning to the original visual and then in turn flipping on the others. Much professional growth has occurred in the team use of the overhead projector at Snyder. More than 500 slides have been created and prepared in one year. Approximately 200 of these were done in a four-week workshop before school began, but the remainder were made during the regular session due to the availability of free time for such work.

The commercial value of these slides is \$3,000 to \$3,600. The cost of the materials that went into the making of these slides was less than \$1,000. One comparison that can be made now is between the cost of the slides and the cost of the summer workshop. The slides pay for more than half of the workshop.

11. The use of color in the material projected by the overviewer is of significant value.

12. A special point is made of the professional development quite apparent among these teachers in their use of both the closed-circuit TV and the overhead projector. They have grown considerably toward the goal of the artist-teacher.

13. Evaluation of learning is done efficiently and effectively with the aid of modern materials of learning.

14. Another important result from the use of these instruments is the possibility of concentrating on basic materials in large groups and on other materials in various small groups. In each high-school subject, as indicated earlier, some materials can be learned in very large groups. It is equally true that other parts of each high-school subject must be learned in small groups and individually. These machines provide the opportunity for this to be done.

15. What has been said about the closed-circuit TV and the overhead projector applies equally well to the tape recorder. The recorder, as well as the overview machine, has been used with considerable skill in the Spanish classes in Snyder. The tape recorder enables the teacher to handle a larger number of pupils. The more proficient students use tape recordings which the teacher has developed, and the less proficient receive special drill and personal attention by the teacher during the same period.

16. The statistical results in all classes that have used one or more of these instruments show in all cases that the pupils are learning as much as they formerly did, and in some cases the results show superior learning to that which formerly prevailed.

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It is essential that the members of a teacher team have a time and place to meet daily or quite frequently. Mere designation as a team does not produce such a working unit automatically. The relationships must be consciously developed over a period of time. This does not take long if the persons share a planning period. The functions of each individual need to be identified in relation to the total teaching program for the group. Here the members of a social studies team meet in a room that has been provided with equipment to facilitate the work of the staff. The group includes four professionals and a clerk.—Jefferson County (Colorado) Public Schools



An adequate testing program is as much a part of the team-teaching approach as any regular organization of classes. Most test situations are routine and require little of the teacher's time and energy. Since this is the case, it is possible to administer a test to a very large group. Here a teacher and a clerk supervise a class of over 90 during an examination. Two other members of the team are carrying out planning and preparation activities. There is no reason why these students can't be taking different tests at this time in case it is desirable for one reason or another.—Jefferson County (Colorado) Public Schools

Part III

Studies Continuing During 1958-59



Individualization of teaching requires numerous occasions for the professional to work with pupils singly or in small groups. Just as team-teaching allows the assembling of large numbers of persons, it also permits small group activities. Here a member of the team is conversing with three pupils who are doing some research. They are in a small study room which is part of the library. The door can be closed so that they can discuss materials without disturbing the others in the main library area. All the facilities of the library are available and the librarian and staff can be called on for direction.—Jefferson County (Colorado) Public Schools



This picture shows a student reporting to a class of more than seventy. During the year, each member of the class will have a number of opportunities to make oral presentations to the group. Poise and self-confidence are developed. One of the functions of the teaching team is to discover and utilize the resources and talents available in the students. The paraprofessional sets up index cards with this information on them, and the professionals have ready reference to an additional source of instructional enrichment.—Jefferson County (Colorado) Public Schools

An Extensive Study of Team Teaching and Schedule Modification in Jefferson County, Colorado, School District R-1

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PURPOSE OF OUR STUDY

URGENTLY needed progress in education requires continual examination of the instructional programs in the schools of America. Jefferson County, Colorado, School District R-1 has taken the position that experimental research must be conducted if improvements are to be made. The study in Jefferson County, Colorado, was designed to determine the effects of team-teaching and schedule modification on the educational progress of students in the secondary schools. This was a part of the larger challenge to identify ways of improving the utilization of the staff.

It appeared that one of the major obstacles to attaining the most effective use of the staff potential in the secondary schools was the inflexibility of the daily schedule. Coupled with this was the rigidity of the class size concept. A pattern of planning had developed which had required that teachers meet with a limited number of students at a specific time, day after day. This was supported widely by educators and lay people in order to insure that stress on teachers be controlled. In intent this was good; teacher load had to be restricted to a reasonable level.

However, all over America some problems had been aggravated by the relative rigidity of ideas and practices in relation to class schedules and class size. Among these problems were: (1) the inefficient, uneconomical use of staff time, especially for certain kinds of procedures which could easily be handled in large groups; (2) the stifling of the initiative and creative expression of teachers caused by the regimentation of meeting the same size and type of group for every variety of

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activity; (3) the continued gearing of the planning of school plants to the concept of classes of 25 to 35, which had restricted the possibility of innovation in school practices; and (4) the short-sighted subordination of flexibility to stability in educational planning.

Careful investigation of possibilities of adjustment in the organization of classes and utilization of staff was required. In Jefferson County, Colorado, School District R-1, we set out to conduct basic experimental research in these areas.

BACKGROUND FOR OUR STUDY

During the school year, 1957-58, a controlled experimental investigation was conducted into the effects of class size on the achievement of pupils. The project was carried on in cooperation with the Commission on the Experimental Study of the Utilization of the Staff in the Secondary School, supported in part by the Ford Foundation's Fund for the Advancement of Education. Selected for study were classes in English III, Plane Geometry, American History, and Biology, in the eight high schools of Jefferson County. Classes of ten, twenty, thirty-five, sixty, and seventy, were organized in those subject areas. All groups were randomly selected except those of ten pupils, which were chosen on the basis of intelligence, achievement, and teacher judgment. A total of 1,075 pupils in the tenth and eleventh grades was included. To limit teacher load, two persons were assigned to the groups of sixty and seventy.

Control was established by the administration of tests of educational development to all pupils enrolled in grades ten and eleven, and tests of mental ability were given to establish the nature of the experimental groups. Statistical analysis was made of data obtained from pre-testing and post-testing. Consultants from the University of Denver and members of the administration staff of Jefferson County Schools were utilized as resource personnel. There were regular meetings, conferences, visitations, and reports by all participants.

The experimental study produced these findings: *first*, there were no significant differences in the achievement of pupils in classes of various sizes; *second*, small groups of high capacity learners were not academically or economically feasible; and *further*, students had not been harmed by participating in large group work, and subjective analysis indicated that team-teaching had possibilities. These conclusions led to the continuation and extension of the study during the 1958-59 school year.

BASIC ASSUMPTIONS AND HYPOTHESES

Listed below are the assumptions which formed the foundation for this study. They were based upon general consensus of data and authoritative opinion about the function of the modern secondary school in a changing society.

1. Schools must continually meet new educational needs created by changes in our society.

2. Experimental research must be conducted in order to improve instructional programs sufficiently and rapidly.

3. Increased efficiency in the utilization of the staff is a direct route to better educational opportunities in the secondary schools.

4. Educational development of students is a valid measure of the effectiveness of the staff.

5. Attitudes of teachers and learners are an important factor in the instructional process.

Following are the specific hypotheses which were proposed and tested for this study.

1. Teaching teams produce better results in the educational development of pupils than teachers working singly with regular classes.

2. Better results in pupils' educational development are produced with a schedule which is modified for more efficient utilization of staff than with a regular schedule.

3. It is economically feasible to use team teaching and schedule modification in secondary schools.

4. The opportunities for varied pertinent learning experiences are provided better in situations using team teaching and schedule modification than in regular classes.

DESCRIPTION OF THE PROJECT

Much of the impetus for the 1958-59 study came from the enthusiasm created by the project of the previous year and from the insight provided through our association with Dr. J. Lloyd Trump and the members of the Commission. Personnel of the schools of Jefferson County, Colorado, believed that staff utilization in secondary schools could become more efficient through increasing professional time applicable to learning situations and that it was economically feasible to do this. Team teaching seemed to be a promising area for research along this line.

In addition in one of the schools, a science teacher and the principal were very interested in trying a "break-out" of the schedule which would provide opportunities for experimenting with various kinds of pupil groups and uses of staff. Under their leadership a partial modification of the daily schedule of the school was made.

In the summer of 1958 a work session was held for two weeks. One of its purposes was the orientation of personnel to the experimental project. Participants were acquainted with the design, hypotheses, and proposed procedures. The responsibilities of various persons were outlined and the relationship of the research to the over-all school program was described. Also, teachers made general preparations for the ensuing year and specific plans for the first few weeks of school.

The eight senior high schools in Jefferson County, Colorado, School District R-1 launched this basic research in the areas of team teaching and schedule modification. The study was conducted in cooperation with

the Ford Foundation and the National Association of Secondary-School Principals, Commission on the Experimental Study of the Utilization of the Staff in the Secondary Schools.

TEAM TEACHING

Seven high schools were involved in the team teaching approach, with a total of approximately 1,500 students participating. Included were the subject areas of social studies, business education, English, and mathematics. In general, the procedure was to analyze the needs of the students at frequent intervals, and then apply the competencies of the teaching team to those needs, with continual evaluation of progress. There were opportunities for having large groups, small groups, individual contacts, and independent study. A satisfactory pupil-teacher ratio was maintained in every case. In addition to the professional personnel, a clerk was provided for each team in order to accomplish the work associated with the investigation. The following is an example of the design used.

TABLE 1. Typical Team Teaching Design

<i>Time</i>	<i>Subject</i>	<i>Pupils</i>	<i>Teachers</i>	<i>Clerks</i>
8:15- 9:10	Plane Geometry	82	3	1
9:15-10:10	Plane Geometry	80	3	1
1:15- 2:10	Plane Geometry	87	3	1

Within this structure with three teachers available to teach approximately 85 pupils, it is apparent that there was much flexibility for grouping, staff utilization, pupil activity, and use of resources. For example, each large group of 85 pupils constituted a class for such activities as introduction, lecture, enrichment, and evaluation; small classes were used for discussion, laboratory techniques, and homogeneous grouping.

In team teaching there was no adjustment to the schedule except the necessity for scheduling all members of the team at the proper time for the classes and planning. Teachers were assigned to other classes, but the total load was normal. For example, one teacher's schedule included these three plane geometry classes, an Algebra II class, a study hall, and a preparation period.

SCHEDULE MODIFICATION

One of the seven schools which had team teaching also had a modified schedule for the physics classes. This involved one teacher and a part-time clerk. It was possible to have groups of various sizes for particular purposes.

At Golden High School the schedule was partially modified for eleven teachers and approximately 350 students. Cooperative planning and teaching were an important part of the "Golden Plan," just as in the team teaching approach. In essence, it was an interweaving of teacher-pupil schedules which incorporated flexibility. In Table 2 are shown the weekly schedules of groups participating in the study.

TABLE 2. Classes Participating in Schedule Modification

Subject	Period	Monday	Tuesday	Wednesday	Thursday	Friday
BIOLOGY Sections A, B, C, D, E, G	I		E	E	D	
	II		D	E	D	D, E
	III	A, B, C, D, E, G	G	A	G	A, G
	IV	A		A	G	
	V	B		B	C	B, C
	VI		C	B	C	
CHEMISTRY Sections A, B, C, D	I		A		A	A
	II	B		B		B
	V	A, B, C, D	D	D	D	A, B, C, D
	VI		C	C	C	
PHYSICS Sections A, B	II		A		A	
	IV	A, B	B	A, B	B	A, B
ALGEBRA II Section B	V		B		B	
	VI	B	B		B	
TRIGONOMETRY Section A	I	A		A		
	II	A		A		A
ENGLISH II Sections A, B, C, D, F	I		A	A	A	A
	II	A, B, C, D, F	C, D, F	C, D, F	C, D	C, D
	III		B, F	B, F	B	B
JOURNALISM Section A	I	A		A		A
	II	A		A		

NOTE: Similar arrangements, not shown here, were made for Spanish II, Spanish III, French II, Art II, Architectural Drawing, Drafting, Woodwork II, and Woodwork III.

In order to help clarify this organizational pattern, a weekly schedule for Biology is given in Table 3. It shows that the biology teacher contacted students twenty-two periods a week. He had eight periods for preparation or other activities. The sections usually included about twenty students. However, because of complications of individual student schedules, larger sections occurred. At those times two or more teachers were available.

To illustrate what was happening to a student, a typical, actual schedule is presented in Table 4. The student had the customary amount of time per week in each subject, but the schedule was modified for English II, biology, Algebra II, and study. All classes except those specifically noted had fifteen to thirty-five students.

ORGANIZATIONAL PATTERNS

The participating members of the school staffs were chosen in several ways. Whenever possible those persons were included who expressed a wish to be a part of the program. Over one third of the personnel in the study were volunteers; almost one third were assigned because they were teaching the selected subject area; and about one third were persons new to Jefferson County Public Schools. Half of this last group were professionals and half were clerks.

TABLE 3. Modified Biology Schedule (Sections A, B, C, D, E, G)

<i>Period</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
I (Section) (Teachers)		E Papenfus	E Papenfus	D Papenfus	
II (Section) (Teachers)		D Papenfus Christensen	E Papenfus Chapman	D Papenfus Christensen	D, E Papenfus Chapman
III (Section) (Teachers)	A, B, C, D, E, & G Papenfus Christensen Chapman	G Papenfus Christensen	A Papenfus Christensen Chapman	G Papenfus Christensen	A, G Papenfus Christensen Chapman
IV (Section) (Teachers)	A Papenfus		A Papenfus	G Papenfus	
V (Section) (Teachers)	B Papenfus		B Papenfus	C Papenfus	B, C Papenfus
VI (Section) (Teachers)		C Papenfus	B Papenfus	C Papenfus	

The basic composition of a team included a professional-in-charge, who was the leader or chairman of the team and generally had more training, experience, and leadership ability than the other teachers; two professionals, who were certificated, qualified teachers; and one clerk, who was uncertificated, but stenographically skilled or one paraprofessional, who was an uncertificated person with some skill in typewriting and a background of courses in the subject. Because of enrollment, two teams had only a professional-in-charge, one professional and a clerk; two teams had only a professional-in-charge and a clerk or paraprofessional. The principals and deans worked closely with the teams in an advisory capacity.

TABLE 4. Typical Student Schedule Modification

<i>Period</i>	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>
I	World Hist.	World Hist.	World Hist.	World Hist.	World Hist.
II	English II ¹	Study	Study	Study	Study
III	Biology ²	English II	English II	English II	English II
IV	Spanish I	Spanish I	Spanish I	Spanish I	Spanish I
V	Biology	Algebra II ³	Biology ³	Algebra II ³	Biology
VI	Study	Algebra II ³	Biology ³	Algebra II ³	Algebra II

¹ Group of 180 students; ²Group of 160 students; and ³Double block of time.

For the most part, the students involved were all of those enrolled in the subject in a school. In the two cases where this was not so, the pupils in the experimental classes were selected at random on the basis of course election and assignment.

School A—Social Studies. At this school the professional-in-charge and a paraprofessional had one class of 57 American History students and two classes of World History with 67 and 82 students. These groups met daily in a cafeteria which was equipped with public address system and audio-visual facilities. This teacher had as good rapport with the students as could be found in a classroom anywhere. He had no other classes and he used the remainder of the day for preparation, research, and meetings with small groups and individuals. Although large groups are usually not considered suitable for general discussion and exchange, this team did a masterful job with these activities.

School B—Business Education. This team consisted of a professional-in-charge, a professional, and a clerk. The teachers both had other teaching assignments in addition to the experimental classes. As a team they had three Typing I classes of 76, 77, and 78 students. The classroom was actually two regular classrooms with the dividing wall remodeled to include a vision strip which permitted the teacher to view the entire area. A sound system was installed with jacks and speakers in both rooms. The tape recorder became an important factor in the instructional process. Some grouping and a great deal of individual attention were possible in this situation. The team was handicapped to an extent because some of the necessary equipment was not provided until several months had passed.

School C—English. This team had the basic four members. Their responsibility within the research project was for one class of 110 students in English II and one class of 87 students in English III. The facilities available to these groups were two regular classrooms and one double-sized room which was large enough for the whole class. This large room also had an accordion-style divider which permitted its use for two groups when necessary. The overhead projector and other equipment were prominent factors in teaching. A dictaphone was used frequently as a means of facilitating communication between personnel. A great deal was done with grouping of various types, including the use of some of the paraprofessional's time for work with a small group of students in remedial reading.

School D—Social Studies. Three persons made up this team which was assigned one experimental class of 85 World History pupils and one of 56 American History pupils. They used the cafeteria for the large groups and had another classroom available when needed. Considerable use was made of the library also. Each of these persons had little or no previous experience which proved to be a decided handicap in establishing spirit, confidence, and direction. However, a real effort was made to involve students in planning and evaluating teaching-learning procedures.



Changes can be made in physical facilities to accommodate certain situations. The maintenance department of the school district put this vision strip in the wall between two classrooms. Each of the rooms is equipped with an amplifier and microphone jacks. This Typing I class includes almost 80 students. Two professionals and a clerk are assigned to the group. In this view, one teacher is handling the class. At the same time she is giving instructions, the lesson is being recorded on tape. This will be played to the other Typing I classes later in the day. The other members of the team can assist in these rooms or do other jobs in an adjacent work room.—Jefferson County (Colorado) Public Schools



Sections of cafeterias are adaptable to use with large classes. They can be shut off from the kitchen or other areas with a minimum of materials and labor. This print shows a professional and paraprofessional with a class of 85 pupils in social studies. While the teacher is giving time for supervised study, the paraprofessional is doing some clerical work at the desk. Both are available for giving assistance to individuals. The overhead projector is ready for immediate use when the teacher needs it.—Jefferson County (Colorado) Public Schools

School F—Social Studies. One class of 117 World History students and one of 82 American History students were assigned to a team of four. Although they had three excellent classrooms for regular or small groups, these teachers attempted to use a cafeteria for the large classes which was not at all satisfactory because of noise and other features. However, frequent use of the library was made. Project work, research, and independent study were carried on very successfully. Personnel resources of the community were drawn upon quite often.

School H—English. At this school a team of four was assigned to three English II classes of 111, 118, and 122 pupils. They tried several kinds of subgroups with varying success. Two regular classrooms and a "little theater" were available to them. The latter had adjustable tablet arms for a number of the seats. The cafeteria was occasionally used for the administration of tests and the auditorium and library were suitable for certain activities. This group was made up of experienced teachers who had some difficulty in becoming a team. After two or three months, they succeeded in achieving a harmonious positive relationship.

School G—Mathematics and Science. The mathematics team was used as the example in Table 1. Three teachers and one clerk were assigned to three Plane Geometry classes of 80, 82, and 87. They used two regular classrooms and the cafeteria which was equipped with chalkboard and audio-visual facilities. Changes of personnel occurred during the year for reasons not related to the study. However, continuity of program was maintained by the professional-in-charge. In actual operation most of the clerk's time went to the other subject area.

In Physics one teacher and the clerk had about 160 students in a somewhat modified schedule. Instead of classes of 32 pupils for five periods every day, the teacher had groups of 20 for recitation, 20 for laboratory, 40 for lecture, and 80 for testing. The students were scheduled for the customary five sessions during the week within this pattern. The cafeteria was used for the testing; the lecture room and laboratory for other types of activities. This instructor was especially pleased that, with the assistance of the clerk, he was able to post-test grades the same day the evaluation occurred.

School E—Schedule Modification. This "Golden Plan" was previously described in detail. The auditorium was used for all larger than normal groups. The students provided their own clipboards for writing purposes.

OTHER PROCEDURES

A meeting of all participating personnel was held one night per month. This included a general session for items of interest to everyone and group sessions for emphasis on specific topics. The membership of these groups changed to meet the needs of the teams. Innumerable other meetings were held by the teams during school, before or after school, and at night throughout the year.

Members of the administrative staff of Jefferson County Public Schools and consultants from the University of Denver were utilized as resource personnel. Visitations and conferences with teachers occurred frequently.

Weekly reports were turned in by individual team members to the director of the project. These contained a brief description of the previous week's work and notations of special events, activities, attitudes, and reactions. Twice each month the principals and deans reported the progress within their schools. The resource persons gave opinions, criticisms, and suggestions after each visitation or contact with school personnel.

Classroom practices, procedures, and techniques were not structured for the experiment. The teachers were encouraged to determine and utilize the most appropriate methods for their particular subjects. The basic curriculum guides were the same as those developed for the entire school system by area committees. Creativity and professional freedom and responsibility were stressed.

EVALUATION AND FINDINGS

Careful evaluation is a necessary part of an adequate research program. Interesting as it is to observe the rapt attention of students as they watch the demonstration of cell division shown through the overhead projector by pulling wet noodles through a fluid, this is not sufficient justification for a project. Available objective and subjective data must be collected and treated. A description of the method and results of the evaluation in Jefferson County, Colorado, follows.

Method of Evaluation. The measurement of the academic progress of the students was done by the administration of the *Iowa Tests of Educational Development*. These were selected because they concentrated on broad intellectual skills and ability to use what had been learned. We were measuring gains of a permanent nature. The pre-test was given the last part of September 1958, and the final test the first part of May 1959. The sub-test scores were used for comparisons between experimental and control groups. For social studies we used Test 1, *Social Studies Background* and Test 5, *Reading Social Studies*; for English, Test 3, *Correctness of Expression* and Test 7, *Reading Literature*; for plane geometry, Test 4, *Quantitative Thinking*; for science, Test 2, *Natural Sciences Background* and Test 6, *Reading Natural Sciences*; and for schedule modification, the *Composite Score*.

Students in the control groups were the total enrollment in a subject in a school or were selected at random from the class lists. The situations were as nearly like those of the experimental groups as possible. Many variables were eliminated by use of students within the same school district. Other factors taken into careful account were the size of school and the experience and training of teachers.

Since none of these sub-tests related directly to business education, a special Typing I test was constructed by the teachers in the school district. It was a three-minute speed and accuracy test with a score derived in terms of correct words per minute. The pupils were tested in December and May.

In addition to these subject area tests, three instruments were constructed to secure data from students and teachers. One of these was a reacto-meter which was constructed to seek the pupils' reactions in regard to whether the experimental classes were providing more opportunity than regular classes for some generally accepted procedures and practices. This was done in November and April. Another instrument was an analysis of procedures which was given to participating personnel to determine whether they thought certain procedures and practices were being used more frequently and successfully in the experimental classes than in regular classes. This also was done in November and April. The third was an instrument for determining the teams' adaptability, or capacity for adjusting to changing educational needs by the utilization of modern practices. It was used in May only.

An important aspect of the evaluation process was the provision for reports, comments, and other reactions of team members and resource personnel. This was a productive source of criticisms and suggestions for the project.

For purposes of statistical treatment, the null hypotheses were postulated. These hypotheses were tested by the application of analysis of covariance in most instances, but analysis of variance was used in some cases. In establishing confidence limits, the 5 per cent level was used to represent a significant difference and the one per cent level for a highly significant difference.

Some data were described by the use of tabulation, rank, percentage, and selection for emphasis. These procedures were primarily for interpretation within the project rather than for scientific reporting. However, this did not lessen their importance.

Results of Evaluation. The following results are grouped according to the instrument used for collecting the data. They include the *Iowa Tests of Educational Development*, Typing I test, reacto-meter, analysis of procedures, measure of adaptability, and other evaluative statements. For clarity the results of the analyses of covariance for the *Iowa Tests of Educational Development* are placed in Table 5.

All of these F-ratios showed differences which were not significant, except English III which indicated that team teaching was superior to regular procedure and schedule modification English II which indicated that regular teaching was superior to modified schedule. Also, the F-ratio for plane geometry was large enough that it indicated the possibility of some difference favorable to the experimental classes. When the data from the locally constructed test (Typing I test) was treated by analysis

TABLE 5. Tests of Significance of the Influence of Team Teaching and Schedule Modification on Educational Development

<i>Subject Area</i>	<i>F-Ratio</i>	<i>5 Per Cent Level</i>	<i>1 Per Cent Level</i>
World History.....	.0047	3.86	6.69
American History.....	.043	3.87	6.72
English II.....	.0013	3.85	6.68
English III.....	6.60	3.91	6.82
Plane Geometry.....	3.49	3.87	6.72
Physics.....	.38	3.88	6.73
Schedule Modification			
All areas.....	.11	3.85	6.67
English II.....	5.32	3.87	6.72
Science.....	1.33	3.87	6.72

of covariance, they yielded an F-ratio of 1.68. When compared to 3.86 for the 5 per cent level and 6.69 for the 1 per cent level, there was no significant difference between experimental and control classes.

Reacto-meter. Initial and final administration of this instrument to students revealed that about half of the responses indicated that experimental classes provided more opportunity than regular classes for those procedures and practices; about a fourth indicated there was no difference between experimental and regular classes; and slightly more than a fourth indicated that experimental classes provided less opportunity than regular classes for those procedures and practices. Examination of 100 cases taken at random showed that students felt certain practices needed additional emphasis.

Analysis of Procedures. Application of analysis of variance indicated that there was no significant difference between classifications of personnel with regard to opinions as to whether certain procedures and practices were being used more frequently in experimental classes than in regular classes. The classifications referred to were principals, deans, teachers, and clerks. On the other hand, similar treatment showed a highly significant difference between the various schools or teams. Also, there was a significant difference between the initial and final administration which indicated a definite opinion of improvement in use of the procedures in experimental classes. Scrutiny of the responses with regard to the percentages which were favorable, undecided, or unfavorable to the experimental classes showed good support of the project. The items of the instrument were examined more closely by use of the data from the professionals-in-charge. This yielded information about the practices and procedures which required additional emphasis.

Measure of Adaptability. Analysis showed that there was no significant difference between teams or between subject areas with regard to the capacity of the teachers to adjust to changing educational needs by the utilization of practices. However, in comparing the scores of participating personnel in 1957-58 with those in 1958-59, it was revealed that there was

a highly significant difference. This difference represented greater willingness to experiment and to be creative during the second year.

Other Evaluative Statements. The general consensus of participating personnel and resource persons was enthusiastically favorable to the accomplishment and potentiality of team teaching and schedule modification. They felt that the advantages far outweighed the disadvantages.

FINDINGS

The conclusions and interpretations are divided into two sections. The first section includes those which emerged from objective data; the second is made up of reactions and judgments of the persons who were associated with the program.

Results of Objective Analysis. Perhaps the most gratifying result was the justification of the confidence of the students, parents, and teachers. Their willingness to cooperate with research in the secondary schools was rewarded by the finding that the students in the experimental classes did just as well as those in normal situations. Since the constant changes and adaptations in the organization and procedures for classes did not adversely affect the educational development of students, great impetus and encouragement for further research was given.

Measurement of pupil reactions showed that they generally considered it advantageous to be in classes with teaching teams and modified schedules. The results actually showed substantial support for the experimental program since students did not identify themselves. Comparison of the reactions at the early part of the year with those toward the end indicated that this support was sustained throughout the year.

Analysis of procedures disclosed that the project was looked on with favor by all classifications of personnel. However, there was a highly significant difference between teams with regard to opinions about the use of procedures. Since the use of modern procedures and practices was an indication of the experimental mindedness of teachers, it was concluded that there were significant difference between the schools with regard to willingness to try new techniques. This was substantiated by the reactions of students. Comparison of the initial survey with the final one pointed out that there was a significant gain during the year in the support of experimental classes by the staffs and in the effectiveness of the use of those procedures.

These conclusions were borne out by the measure of adaptability. Teachers made great strides during the year in developing the capacity of teams and individuals to adjust to changing educational needs.

Reactions and Judgments of Personnel. In sifting through reports and comments these items seemed most prevalent and important. Some of the advantages of team-teaching and schedule modification in Jefferson County, Colorado, School District R-1 were: (1) teachers made better preparation; (2) students had the benefit of more outside resources; (3)

cooperation and teamwork were promoted; (4) teacher specialties were used to better advantage and teacher weaknesses were neutralized; (5) students were interested in the program; (6) there was better placement of students in terms of patterns of learning and rate of growth; (7) greater flexibility was developed in teachers and fear of change was overcome; (8) teachers were relieved of some routine duties; and (9) better instructional methods resulted in enriched opportunities for pupils.

Some of the difficulties noted were: (1) it took some time to develop team spirit in certain instances; (2) teachers sometimes felt their responsibility for the individual student was dissipated; (3) the newness made some of the scheduling a problem; (4) some facilities were inadequate; and (5) in some cases, mutual planning time for team members was not possible during the school day.

We did make considerable progress in the effective utilization of professional time, the use of material and personnel resources, the development of appropriate teaching procedures, the promotion of good attitudes and morale in teachers and students, and the provision of adequate facilities and equipment.



While the fourth member of this English teaching team is presenting a lecture to the entire class, two professionals and the paraprofessional are listening to some pre-recorded materials which have been prepared to assist them in their preparation for the next unit. This device is also used when resource persons meet with the group. Suggestions and criticisms are recorded and used later as a basis for discussion.
—Jefferson County (Colorado) Public Schools

Summary of the Findings. With specific regard to the original hypotheses these were the findings of the study.

1. Teaching teams produce just as good results in the educational development of pupils as teachers working singly with regular classes.

2. Just as good results in pupils' educational development are produced with a schedule which is modified for more efficient utilization of staff as with a regular schedule.

3. It is economically feasible to use team teaching and schedule modification in secondary schools. The small additional expense for clerical help in the study was compensated by extra services such as the preparation of permanent materials, saving money on substitutes and the completion of special reports and work related to the experimental situation.

4. The opportunities for varied pertinent learning experiences are provided better in situations using team teaching and schedule modification than in regular classes.

RECOMMENDATIONS FOR NEXT STEPS

Research answers questions, but, as it broadens and matures the view of those involved, it indicates new areas which require study. Such is the case in Jefferson County, Colorado. The purpose of the 1959-60 study is to continue the investigation of promising means of improving instruction and utilizing the staff in the secondary schools. Research is being conducted in the areas of schedule modification, symbiotic teaching terms, interdisciplinary teaching teams, intradisciplinary teaching teams, use of material and personnel resources, independent study by students, attitudes of pupils and teachers, and adaptability of teachers.

Some of the related problems and factors are: the definition and designation of cooperative planning time; identification of areas of proficiency of teachers; analysis of appropriate activities for various-sized groups of students; discovery and use of outstanding techniques; description of teaching functions and their relation to classification and remuneration; utilization of community adults as team members; involvement of pupils in team planning; and the evaluation of attitudes of participating personnel.

Other aspects which merit attention are: more extensive analysis of individual students and increased teacher-pupil contact; class activities similar to workshops, conferences, and seminars; laboratory situations in various subject areas; examination and revision of the curriculum; development of techniques of self-evaluation by students; educational opportunities outside school time, but under professional direction; articulation of the experimental program with that of the junior high schools; analysis of expenditures; and encouragement of action research by teachers.

The St. Paul Minnesota Teacher Recruitment Project Accounts for the Second Year of College and Laboratory Experiences

KENNETH R. DOANE
WILLIAM J. SCANLAN

BACKGROUND AND DESCRIPTION OF THE PROJECT

THE St. Paul Teacher Recruitment Project sought to tap a new source of secondary-school teachers by providing scholarships to 30 well-qualified high-school graduates who might not have attended college because of financial limitations. (See January 1958 NASSP BULLETIN, pp. 94-114.) The Project has three aspects: recruitment, teacher education, teacher utilization. The Project extends over a five-year period in which the teacher trainees spend time in college, in the planned laboratory experiences in the public secondary schools, and in weekly seminars. The laboratory experiences were limited to two hours per week during the first year, five hours per week during the second year; they will be limited to ten hours per week during the third year, fifteen hours per week in each of the fourth and fifth years. The college load suggested for the teacher trainees is 30 semester credits in the first year, 26 semester credits in the second year, 24 semester credits in the third year, and 20 semester credits in the fourth year and in the fifth year.

The trainees will earn college degrees at the end of the five-year program. Each trainee will have received grants during the five-year period, based on costs to him, of not less than \$3,000 if he attends the University of Minnesota or \$4,000 if he attends a private college in the St. Paul-Minneapolis metropolitan area.

The outcomes and achievements of the first year, 1957-1958, were reported in detail in a previous report in the January 1959 NASSP BULLETIN. On the basis of college marks and scores on college achievement tests, the trainees as a group gave a good accounting of themselves. Not all individuals originally selected, however, lived up to these high expectations. Awards of some were terminated because of poor academic achievement in college or failure to meet the requirements set up as minimum standards by the Advisory Committee.

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The academic year, 1958-1959, was the second year of the Project. Thirty trainees began the academic year ready for a year of college education typical of the second year in general education as found in liberal arts programs at the University of Minnesota, Hamline University, Macalester College, and the College of St. Thomas. In addition to the college program, each trainee was exposed to approximately 125 clock hours of laboratory experiences in secondary-school classrooms in the St. Paul Public Schools. Well-trained, outstanding classroom teachers served as project teachers at work with the teacher trainees, directing each trainee's planned experiences so that he would be guided into teaching-learning situations of value to a prospective secondary-school teacher.

ACTION AND RESULTS OF 1959

Laboratory Experiences

One of the most important aspects of the program is providing each teacher trainee with extensive classroom experiences during his early years in college. If young college students are to be directed toward careers as secondary-school teachers, it is imperative that they be exposed early to the classroom and to the role of the teacher in the secondary school. During the second year in college, the objectives of the laboratory experiences for the trainees were as follows:

To gain insights into successful secondary-school teaching by close association with skilled classroom teachers who acted as project teachers

To gain confidence by having varied classroom experiences under the project teacher's supervision

To understand the components of the teaching-learning processes

To know the factors involved in group management and control in the classroom

To appreciate individual differences in the classroom and to be able to provide for these differences

To do clerical work and thus save the time and energy of the project teacher

During the summer workshops in 1957 and 1958, the project teachers spelled out classroom activities that they wanted the teacher trainees to perform during their second year in the classrooms. These activities represented the judgment of 46 classroom teachers plus the judgment of the college professors present at the Summer 1958 Workshop. The following check list was to serve as a guide for the teacher trainees and the project teachers in providing laboratory experiences for the trainees during the academic year 1958-1959.

1. Observe project teacher teach on four or five occasions at a minimum of three or four hours total.

2. Instill confidence in the trainee by giving him varied experiences under the project teacher's supervision.

3. Project teacher should demonstrate teaching techniques and, wherever possible, point these out to the teacher trainee.

4. Assist project teacher with supervised study or assume coaching of individual pupils or small groups during the supervised study period.
5. Assist pupils on occasion who have been absent and are behind and need to be taught certain fundamental skills or processes.
6. Use guidance material intelligently. Learn to know the meaning of test results. Learn to interpret test data. Learn to use material in guidance folder intelligently.
7. Learn to operate 16mm projector and have an opportunity to use one.
8. Learn to operate an opaque projector and have an opportunity to use one.
9. Learn to operate a filmstrip projector and have an opportunity to use one.
10. Learn to operate a slide projector.
11. Learn to operate a tape recorder and have an opportunity to use one.
12. Learn to arrange instructional displays on bulletin boards.
13. Learn to prepare materials for specific "topics" or "problems" or "exercises." This may mean consulting the school library or college library or the community library.

TABLE I. Check List—Activities for Teacher Trainees

September to December 1958

Activities Participated in Most Actively to Least Actively as Reported by
Twenty-Nine Trainees and Twenty-Nine Project Teachers

Activity	Rank—Teacher Trainees	Rank—Project Teachers	Mean Participation Score—Teacher Trainees	Mean Participation Score—Project Teachers	Median Participation Score—Teacher Trainees	Median Participation Score—Project Teachers
Observe project teacher teach on four or five occasions at a minimum of three or four hours total	1	1	3.62	3.14	4	4
Instill confidence in the trainee by giving him varied experiences under the project teacher's supervision	2	2.5	2.86	3.18	3	3
Learn to work with the project teacher on marks and reporting practices. Learn to be familiar with the St. Paul Public-School marking system. Assist the project teacher with clerical work involved in marking and reporting	3	6	2.79	2.52	3	3
Learn to do clerical work that takes a teacher's time and energy. Prepare lists. Complete routine record forms. Understand the importance of certain records that are used in the high schools	4	4	2.72	2.96	3	3
Learn to appreciate individual differences in learning abilities. Learn to work with the slow learner. Learn to work with the superior learner	5	7	2.62	2.35	3	2

Table concluded on next page.

<i>Activity</i>	<i>Rank—Teacher Trainees</i>	<i>Rank—Project Teachers</i>	<i>Mean Participation Score—Teacher Trainees</i>	<i>Mean Participation Score—Project Teachers</i>	<i>Median Participation Score—Teacher Trainees</i>	<i>Median Participation Score—Project Teachers</i>
Project teacher should demonstrate teaching techniques and, wherever possible, point these out to the teacher trainee.....	6	2.5	2.59	3.07	3	3
Learn to handle an entire class for a brief period of time, perhaps for 5 or 10 minutes at first to 15 or 20 minutes later.....	7	9	2.48	1.97	3	2
Assist the project teacher with supervised study or assume coaching of individual pupils or small groups during the supervised study period.....	8	5	2.46	2.68	3	3
Learn to score objective tests that have been prepared by the project teacher.....	9	8	1.97	2.03	3	2
Use guidance material intelligently. Learn to know the meaning of test results. Learn to interpret test data. Learn to use material in guidance folder intelligently.....	10	14	1.83	1.42	2	1
Learn to teach routine drill materials in subject areas.....	11	15.5	1.48	1.29	2	1
Learn to duplicate tests and worksheets.....	12	15.5	1.41	1.24	0	1
Learn to check the physical features of the classroom. Check lighting, ventilation, and orderly arrangement of furniture, equipment, and supplies.....	13	10.5	1.38	1.57	1	1.5
Prepare seating charts and use them.....	14	12.5	1.21	1.45	0	1
Assist pupils on occasion who have been absent and are behind and need to be taught certain fundamental skills or processes.....	15	12.5	1.14	1.50	0	2
Learn to prepare materials for specific "topics" or "problems" or "exercises." This may mean consulting the school library or college library or the community library.....	16.5	10.5	1.07	1.52	0	1
Learn to participate in an extracurricular program, club activity, coaching a play, assisting with operetta practice, assisting in an athletic program.....	16.5	17.5	1.07	0.97	0	0
Learn to operate 16mm projector and have an opportunity to use one.....	18	19	1.00	0.64	0	0
Learn to operate a slide projector.....	19	24	0.90	0.04	0	0
Learn to arrange instructional displays on bulletin boards.....	20	17.5	0.83	0.97	0	1
Learn to operate a filmstrip projector and have an opportunity to use one.....	21	21	0.59	0.34	0	0
Act as a laboratory assistant. Learn to prepare science demonstration materials. Learn to keep a science laboratory neat and orderly.....	22	20	0.48	0.56	0	0
Learn to operate an opaque projector and have an opportunity to use one.....	23	23	0.45	0.18	0	0
Learn to operate a tape recorder and have an opportunity to use one.....	24	22	0.38	0.31	0	0

14. Learn to appreciate individual differences in learning abilities. Learn to work with the slow learner. Learn to work with the superior learner.

15. Learn to work with the project teacher on marks and reporting practices. Learn to be familiar with the St. Paul Public Schools marking system. Assist the project teacher with clerical work involved in marking and reporting.

16. Learn to participate in an extracurricular program, club activity, coaching a play, assisting with operetta practice, assisting in an athletic program.

17. Learn to do clerical work that takes a teacher's time and energy. Prepare lists. Complete routine record forms. Understand the importance of certain records that are used in the high schools.

18. Learn to teach routine drill materials in subject areas.

19. Act as a laboratory assistant. Learn to prepare science demonstration materials. Learn to keep a science laboratory neat and orderly.

20. Learn to score objective tests that have been prepared by the project teacher.

21. Learn to handle an entire class for a brief period of time, perhaps for 5 or 10 minutes at first to 15 or 20 minutes later.

22. Prepare seating charts and use them.

23. Learn to check the physical features of the classroom. Check lighting, ventilation, and orderly arrangement of furniture, equipment, and supplies.

24. Learn to duplicate tests and worksheets.

Between September and December 1958, and after 50 hours in the classroom, 29 trainees and 29 project teachers were asked to report the activities participated in most frequently to least frequently, checking each activity 4, 3, 2, 1, or 0 as follows:

Check 4—activities you participated in most actively

Check 3—activities you participated in next most frequently

Likewise 2, 1—for activities you participated in, but less frequently

Check 0—activities you participated in not at all

The typical trainee reported that during this period from September to December 1958, he observed his project teacher; he had varied experiences under the project teacher's supervision that instilled confidence in the trainee; he learned to work with the project teacher on marks and reporting practices and assisted the project teacher with the clerical work involved; he learned to do clerical work such as preparing lists, completing routine record forms. He learned to appreciate individual differences in learning abilities; he learned to work with both slow learners and with superior learners. Table I lists in rank order the activities participated in most frequently to least frequently. Most trainees reported some experience with such activities as learning to handle an entire class for a brief period of time, assisting the project teacher with supervised study, learning to score objective tests prepared by the project teacher, learning to use guidance material intelligently. Likewise, learning to teach routine drill material, prepare seating charts, coach individual pupils on occasion who had been absent and were behind, and learning to prepare materials that called for consulting reference libraries were

experiences most trainees reported as having had under the supervision of the project teachers. In the first half of the second year, from September to December 1958, few trainees had opportunities to learn to operate audio-visual equipment or to participate in extracurricular activities.

Table I presents the activities as reported by the 29 project teachers for the same period—September to December 1958. One is impressed with the similarity in the rank order of items as reported by the 29 trainees. The items fall in almost the identical ranking when one compares the first nine items on the list as reported by the project teachers and the trainees. Obviously the project teachers and the trainees are in almost complete agreement on reporting activities of the trainees.

Items of least participation as reported by the 29 project teachers bore a marked similarity to the items reported as participated in least frequently by the 29 trainees. The eight items reported least frequently by the project teachers are the same eight items reported by the trainees.

Table II presents the participation of the 29 trainees during the 75 hours spent in the laboratory from January to June 1959.

The 29 trainees reported that the project teacher instilled confidence in the trainee by giving him varied experiences under the project teacher's supervision—this item ranked first. Next the 29 trainees reported that the project teacher permitted the trainee to observe the project teacher teach. Third the trainee reported that he did clerical work that saved teacher time. This included preparing lists, completing record forms, *etc.* The activities ranked as the ten most actively participated in by the trainees are identical to the ten reported by the project teachers.

What conclusions may one draw from the activities for the entire year reported by the trainees and the project teachers? The trainees had a variety of worth-while experiences in the laboratory situations. They assumed clerical duties related to teaching. They saw and were involved in the teaching-learning processes—where a teacher provided experiences for the learner. They prepared instructional materials.

As a group, the individual trainees and the project teachers reported that the activities engaged in least frequently included the use of mechanical aids such as tape recorders, filmstrip projectors, 16mm projectors, *etc.*

The first nine items are identical for both semesters. Such activities as intelligent use of guidance material, teaching routine drill material, and preparing seating charts ranked higher during the first half of the year. Preparing material for specific "topics" or "problems" or "exercises" ranked higher during the second half of the year. In general there were no important differences in rank order between the December list and the June list.

Logs

Each of the trainees kept a log in which he recorded his laboratory experiences for the 75 hours he was assigned from January 1959 to the close of the school year. The trainee was informed that the log was to be

recorded in a natural style; it was not intended that the entries be structured. It was pointed out that the entries should be detailed enough so that anyone who read the log would get a clear picture of what activities were taking place. As a guide sheet put it: "Report what you did as a trainee. Report the number of people involved. Report any outside preparation you made." The trainees were instructed to date all entries and to submit the log to the consultant at the close of the year. The log was to be available to the project teacher for him to read if he chose to do so.

TABLE II. Check List for Teacher Trainees

January to June 1959

Activities Participated in Most Actively to Least Actively as Reported by Twenty-Nine Trainees and Twenty-Nine Project Teachers

Activity	Rank—Teacher Trainees	Rank—Project Teachers	Mean Participation Score—Teacher Trainees	Mean Participation Score—Project Teachers	Median Participation Score—Teacher Trainees	Median Participation Score—Project Teachers
Instill confidence in the trainee by giving him varied experiences under the project teacher's supervision.....	1	3	3.40	3.18	4	3
Observe project teacher teach on four or five occasions at a minimum of three or four hours total.....	2	1	3.37	3.68	4	4
Learn to do clerical work that takes a teacher's time and energy. Prepare lists. Complete routine record forms. Understand the importance of certain records that are used in the high schools.....	3	7	3.10	2.57	4	3
Project teacher should demonstrate teaching techniques and wherever possible point these out to the teacher trainee.....	4	2	2.93	3.32	3	3
Assist project teacher with supervised study or assume coaching of individual pupils or small groups during the supervised study period..	5.5	5	2.90	2.64	3	3
Learn to work with the project teacher on marks and reporting practices. Learn to be familiar with the St. Paul Public Schools marking system. Assist the project teacher with clerical work involved in marking and reporting.....	5.5	4	2.90	2.71	3	3

Table concluded on next page.

<i>Activity</i>	<i>Rank—Teacher Trainees</i>	<i>Rank—Project Teachers</i>	<i>Mean Participation Score—Teacher Trainees</i>	<i>Mean Participation Score—Project Teachers</i>	<i>Median Participation Score—Teacher Trainees</i>	<i>Median Participation Score—Project Teachers</i>
Learn to appreciate individual differences in learning abilities. Learn to work with the slow learner. Learn to work with the superior learner	7	6	2.80	2.61	3	3
Learn to handle an entire class for a brief period of time, perhaps for 5 or 10 minutes at first to 15 or 20 minutes later	8	9	2.73	2.36	3	3
Learn to score objective tests that have been prepared by the project teacher	9	8	2.67	2.43	3	3
Learn to prepare materials for specific "topics" or "problems" or "exercises." This may mean consulting the school library or college library or the community library	10	10	1.90	2.25	2	3
Learn to duplicate tests and worksheets	11	15	1.83	1.50	0.5	0
Learn to check the physical features of the classroom. Check lighting, ventilation, and orderly arrangement of furniture, equipment, and supplies	12	13	1.80	1.68	2	1
Assist pupils on occasion who have been absent and are behind and need to be taught certain fundamental skills or processes	13.5	12	1.77	1.82	2	2
Learn to teach routine drill materials in subject areas	13.5	14	1.77	1.61	2	2
Use guidance material intelligently. Learn to know the meaning of test results. Learn to interpret test data. Learn to use material in guidance folder intelligently	15	11	1.67	1.86	1	2
Learn to participate in an extracurricular program, club activity, coaching a play, assisting with operetta practice, assisting in an athletic program	16	18	1.37	1.18	0.5	0
Learn to arrange instructional displays on bulletin boards	17	19	0.57	1.11	0	1
Act as a laboratory assistant. Learn to prepare science demonstration materials. Learn to keep a science laboratory neat and orderly	18	17	0.77	1.21	0	0
Prepare seating charts and use them	19	16	0.67	1.29	0	0.5
Learn to operate a tape recorder and have an opportunity to use one	20	20	0.67	0.43	0	0
Learn to operate 16mm projector and have an opportunity to use one	21	21	0.70	0.39	0	0
Learn to operate a slide projector	22	24	0.73	0.07	0	0
Learn to operate an opaque projector and have an opportunity to use one	23	22.5	0.77	0.18	0	0
Learn to operate a filmstrip projector and have an opportunity to use one	24	22.5	0.80	0.18	0	0

Some tentative conclusions may be drawn from an analysis of the 30 logs. The log is a worth-while tool in aiding experienced, trained, professional personnel to get a clear picture of activities engaged in by the trainees. The contents of the log justify the time and effort spent. Often entries in the log are written in such a way as to express the feeling of joy or disappointment of a trainee over experiences that took place. The log reveals a pattern of activities engaged in during the 75-hour assignment, and points out clearly that many trainees follow a sequence from week to week. The entries indicate clearly that perhaps four or five experiences are repeated weekly. Activities vary from trainee to trainee, but each often reports the same or very similar activities from week to week. The log verifies and supplements the check list such that the activities reported on the check list are those most frequently reported in the log. The individual log gives one a personal and intimate understanding of the feelings of the trainee. Some examples follow:

Case 5803: *The trainee worked with a project teacher in vocal music.*

February 6, 1959

. . . I was in charge of the "B" choir. I found this group much more difficult to work with than the girls' glee club class, although they didn't get out of hand and I think we accomplished something.

February 13, 1959

. . . I observed and sang with the "B" choir and accompanied the girls' glee club class. I am surprised at the difficult music and quality of voices these girls have—they are fun to play for.

March 6, 1959

I was quite upset to arrive and find Miss D—— (project teacher) was sick and there was no substitute available. . . . I again took the "B" choir and wished that I'd had some directing experience, but, with two fine accompanists, we kept busy the whole period.

Case 49112: *The trainee worked with a project teacher of a seventh-grade core curriculum class. The trainee had experiences during her assignment in preparing bulletin boards.*

April 2, 1959

I took down the spring bulletin board and got two of the boards ready for the posters and maps the children have been making in connection with their work on the colonies. Working on the bulletin boards has been a wonderful experience. Upon timing myself, I discovered that it takes me half the time to put up a display as it did when I first began.

April 28, 1959

I thought it would be interesting to reread the material in the students' personnel folders after working with them for such a long time. It proved to be well worth the time spent doing it because I seemed to get so much more from the material. This is probably because I know the children better.

The same trainee writing her summary and conclusions on her last day with her project teacher writes: I believe the most important thing Miss H——

has taught me during my assignment is how a teacher must use her time if she is to do a good job of teaching.

Case 3066: The trainee worked with a project teacher in tenth-grade English.

March 4, 1959

I'm getting used to using the blackboard when making explanations or showing examples.

March 5, 1959

... I'm beginning to look forward to each day, because each day brings new and varied experiences to me when working with these students.

April 2, 1959

I met with the students who were to study general mythology with me. Sixteen students signed up to study mythology which amazed me somewhat and scared me, too, because it's a larger group than I had planned on working with. I'll just have to give them more outside reading.

Project Teachers' Ratings

Each trainee was evaluated by his project teacher at the end of his first 50 hours of experience in the laboratory and again at the end of 75 hours of experience in the laboratory. The form used by the project teachers follows:

You, as the project teacher, are asked to evaluate the trainee. We realize it is difficult to judge second-year college students. However, certain personal strengths and limitations are apparently evident to most of us concerning the individual. Likewise, certain professional attitudes may be showing up at this early stage. Keep in mind that the trainee has completed 50 (75) hours with you.

Your evaluation is confidential and will *not* be shown to the trainee.

Key: 4—Excellent—Outstanding—shown to a remarkable degree.

3—Good—Better than average. Some evidence of the qualifications evaluated.

2—Average—Acceptable but in no way outstanding or above average.

1—Below average—Needs to show marked improvement in the qualifications discussed.

0—Poor—Inadequate to a marked degree.

Please rate each of the qualities 4, 3, 2, 1, 0.

_____ Promptness in keeping appointments. Regularity in appointments.

_____ Personality—Cheerfulness—Tact. Ability to get along with you as a supervising teacher. Ability to *take directions* and *carry them out* to your satisfaction.

_____ Personality—Cheerfulness—Tact. Ability to get along with students in the classroom. Ability to get students to cooperate with the trainee. Can he *lead the group* in the *direction* he wants them to go?

_____ Knowledge of subject matter. Do you think the trainee has the potential to acquire the knowledge needed to teach in this field?

_____ Interest in teaching. Does he seem interested in classroom techniques?
Is he enthusiastic about being in the classroom?

_____ Personal appearance—Is he neat? Is he well groomed? Does he dress
according to good taste for the classroom assignment?

Remarks:

Please write a sentence or two that you feel best describes the trainee's strengths.

Please write a sentence or two that you feel best tells us where this trainee
needs to improve most during the next three years.

Table III reports the ratings of December 1958 and June 1959. More than three fourths of the December ratings on the items were 4 or 3. In December, 97 per cent of the ratings in the categories *Promptness* and *Personal Appearance* were 4's or 3's. Seventy per cent of the June ratings on the items were 4 or 3. In June the ratings of 4's or 3's constitute 77 per cent or more of the ratings in five of the six categories.

Each project teacher was asked to comment on the trainee's strengths and areas of needed improvement. The trainees' strengths—important qualities for successful teachers—may be generalized as follows:

Knowledge of subject matter, interest in subject matter, being a good college student, interest and enthusiasm in being a teacher, getting along well with students, being cooperative, and a willingness to work.

Areas where some trainees need to improve most in the next three years may be generalized as follows:

He is shy; he seems to lack confidence. He needs to learn more about the subject matter he is to teach. He needs to show a more positive approach to teaching and leadership. He should not wait to be told to do this or that, but rather proceed to show initiative and do what obviously has to be done. He needs to be more enthusiastic about the role of the teacher in the classroom. He needs training in public speaking.

Each trainee is an individual who goes to college, carries out a field-work assignment, works with a project teacher, and reacts and learns as an individual. He should be evaluated as an individual; his personal strengths and limitations should be appraised and a plan for improvement formulated to fit his needs. Five representative cases are presented as illustrations of evaluations and pertinent factors.

TABLE III. Comparison of Ratings of Project Teachers

	Per Cent of 4 or 3 Ratings	
	December	June
Promptness in keeping appointments—		
Regularity in appointments	97	87
Personality—Cheerfulness—Tact		
Getting along with supervisor	87	70
Leading the group in the classroom in the direction he wants them to go	79	83
Knowledge of subject matter	87	77
Interest in teaching	79	93
Personal appearance	97	90

*Case I***PROJECT TEACHER A, DECEMBER 1958**

Strength: Carries out instructions relating to general record keeping—test marking, cutting stencils, etc. A—— does all these very well.

Needs to improve: Lacks self-assurance, shy, reserved, quiet. She does not get involved in classroom activities or try to take on extra work.

PROJECT TEACHER B, JUNE 1959

Strength: The trainee is sincere and capable. She recognizes her lack of knowledge and inadequate preparation in subject matter.

Needs to improve: Personality. Lacks drive. Must see things to be done rather than waiting until she is asked or told.

The trainee does clerical work with ease, dispatch, and great skill, but she is shy, lacks drive and hasn't become involved in classroom activities except as detailed directions are given. Will this come in the next three years? Teacher-behavior is learned. Perhaps this trainee can learn these things under the direction of competent project teachers. It is a premise of the St. Paul Teacher Recruitment Project that experienced project teachers, seminars, and college courses will exoke suitable growth and adjustment to professional problems by the trainee. One of the values of working with more than one project teacher is that the trainee has multiple opportunities for guidance to overcome limitations.

*Case II***PROJECT TEACHER C, DECEMBER 1958**

Strength: A good mind that can handle the subject matter. Very pleasant person.

Needs to improve: Much too shy. He must be able to develop a more positive approach.

PROJECT TEACHER D, JUNE 1959

Strength: B——'s mastery of his subject matter is his strongest point.

Needs to improve: B—— has got to show a more aggressive spirit, both toward his students and toward his work. He tends to follow rather



Teacher-trainee Nancy Hagberg working with students in English at Mechanic Arts High School, St. Paul, Minnesota.



Teacher-trainee Nancy Orme working with students in Speech class at Central High School, St. Paul, Minnesota.

than lead. If B—— met a problem, rather than solve it himself, he would patiently wait for help.

This young man is having no difficulty with subject matter in college or in the laboratory situation, but he is shy and needs to be more positive in his approach in the classroom. He needs to assert himself more and show more initiative. The trainee, project teacher, and consultant have conferred on these points. The trainee is well aware of his strength and limitations.

Case III

PROJECT TEACHER E, DECEMBER 1958

Strength: J—— is very musical and attractive to look at. She is well groomed, pleasant, willing. J—— offered to help the two days before vacation and I really needed her and I do appreciate her work.

Needs to improve: J—— needs to develop a warm personality so that the students feel a "personal" interest. She is cold and slightly bored. J—— has sort of a superior attitude with students. Needs to develop leadership and enthusiasm in the students.

PROJECT TEACHER F, JUNE 1959

Strength: By the end of the year, J—— said to me, "You know, at first I didn't want to teach junior high-school music, but now I'm beginning to like it so well I'm getting interested in teaching junior high-school students." I was bowled over! But I think this shows that she is learning, developing, and showing more interest. I think next year will tell the story.

Needs to improve: Enthusiasm. Learning to lead and handle music students. Developing confidence and strength as a teacher.

The case represents a situation where lots of work has to be done, is being done, and progress is being made. Conferences are essential to evaluation and planning programs of improvement.

Case IV

PROJECT TEACHER G, DECEMBER 1958

Strength: C—— has a wonderful enthusiasm for teaching, good understanding of and an interest in junior high-school youngsters, willingness to do any and everything for class progress, besides having a very good foundation of knowledge! This is only a partial list of her strengths. I feel she will be an outstanding teacher candidate.

Needs to improve: Have not observed any area on which to comment here—only hope she will continue her interest and enthusiasm for the teaching profession.

PROJECT TEACHER H, JUNE 1959

Strength: C—— shows promise of being an excellent, inspiring teacher. C——, I am sure, when she has finished her college education, she will be an unusually fine teacher.

Needs to improve: Her only weakness is her youth.

*Case V***PROJECT TEACHER I, DECEMBER 1958**

Strength: I feel you have a very strong candidate in Mr. G——. He should prove to be one of the top students in the program. Interest is strong and he can adjust to the classroom. Gets along with students very well.

Needs to improve: More contact with mathematics.

PROJECT TEACHER J, JUNE 1959

Strength: Very cooperative. Takes suggestions well. Good background and interest in subject matter. Enthusiastic and interested in teaching.

Needs to improve: I can't honestly pick out any one thing. Perhaps it would be working with seniors, but this will take care of itself in time.

Cases IV and V represent the teacher trainees who have the potential to be excellent teachers. Given the academic training and the specialized educational training that trainees will normally get in the next three years, they should prove to be superior teachers.

Three-Party Conferences—Trainee, Project Teacher, Consultant

The three-party conference was an outgrowth of the 1958-1959 Workshop. The project teachers asked for them, and they offered a number of suggestions on what should be discussed. During the second semester 1958-1959, when each trainee was working with a project teacher for 75 hours in the laboratory, the consultant arranged a conference with the project teacher and the trainee. The outline or structure used was as follows:

1. Dependability. Interpreted to mean promptness and regularity in keeping appointments.

2. Personal Appearance. Is he neat? Is he well groomed? Does he dress in good taste for appearance on a classroom assignment?

3. Ability to take directions. Interpreted to mean ability to get along with his project teacher.

4. Ability to guide pupils in the way the teacher trainee wants them to go. Ability to direct pupils and to be a successful group leader in guiding the learning experiences of pupils. Ability to get along with the pupils at the teacher trainee's standards.

5. Knowledge of subject matter. Interpreted to mean that the trainee will acquire eventually sufficient information and skill to permit him to teach in this field. We are exploring to see if the trainee is preparing himself to teach in an area in which he will be successful.

6. Liking for secondary-school teaching. Does the trainee like the atmosphere of the classroom?

7. Plans for the next five or six years. Does the trainee plan to remain on the program?

8. Trainee's strengths as a potential teacher.

9. Trainee's limitations or handicaps as a potential teacher. What can he do to overcome these handicaps?

The conferences were held in an informal atmosphere and it was always intended that all parties concerned were free to discuss any business that they felt was pertinent. Frankness was paramount, especially where a serious handicap or problem existed. Strengths were emphasized as well as limitations or handicaps.

The major objective of the conference was an informal evaluation of the trainee in terms of his potential as a future secondary-school teacher. He was being judged largely on his performance as described by his project teacher. The project teacher based his opinion on observations of the trainee who had spent 75 hours in the classroom of that particular project teacher.

Seminars

The trainees attended weekly seminars supervised by the Project Consultant for 26 weeks during the academic year 1958-1959. The seminars were similar to those conducted during the previous academic year. It is expected that the seminars will be continued during each remaining academic year. The seminars for this year sought to orient the trainees to:

1. The philosophy, policies, and personnel of the St. Paul public schools.
2. Expectations in laboratory experiences.
3. Elements of their roles as trainees for success both as college students and as teacher trainees working in the St. Paul public high schools.
4. Records and reports used in the classrooms in the St. Paul public high school (*viz.* program cards, attendance cards, report cards).
5. Use of audio-visual equipment used in the secondary-school classrooms. Personnel from the audio-visual education department demonstrated film projectors, tape recorders, slide projectors, *etc.* Each trainee had an opportunity to practice on these various machines and ask questions to clarify their operation and function.
6. Basic principles of bulletin board layout. Each trainee was expected to prepare a bulletin board. The project teachers asked that seminar time be spent teaching the trainees basic skills that would enable them to arrange bulletin boards attractively in the classroom. The supervisor of art spent approximately four hours teaching the trainees these basic skills. Trainees saw 2 x 2 colored slides of bulletin boards in various classrooms and films on basic art principles.
7. Elementary statistics used by most classroom teachers, such as measures of central tendency and measures of deviation including the standard deviation.
8. Individual differences as they exist in the classroom such as the range in mental ability by school grade and by chronological age, and the range in achievement by age and by grade level.
9. Intelligence testing and the implications of differences in intelligence. A school psychologist administered individual intelligence tests to two children, a dull-normal and a bright youngster. Following the administration of the tests, the psychologist discussed intelligence testing and learning, and the implications for classroom teachers.
10. Components and rationale of lesson plans.
11. Sources and aids for planning.

The seminars were organized to supplement and implement the laboratory experiences. They had no other purpose. Seminars and laboratory experiences are planned experiences for the trainees designed in such a way that the trainees will eventually be richer, skilled classroom teachers.

TRAINEE PERFORMANCE AND GROWTH AS MEASURED BY SCORES AND MARKS *College Marks*

From the beginning, the Project Advisory Committee has emphasized the importance of scholarship among the trainees. As one member put it, "Since they will be expected to stimulate scholarship among their pupils, they should carry a sample of the same." College marks have long been questioned as an adequate basis for describing scholarship or academic performance, yet, they are partially representative, at least. The grade point average of each trainee has been calculated as follows:

For A, 3 times number of credits in the course

For B, 2 times number of credits in the course

For C, 1 times number of credits in the course

For D, 0 times number of credits in the course

For F, -1 times number of credits in the course

TABLE IV. Grade-Point Averages of Trainees

Item	Description	Number	Lowest	Highest	Mean	Median
1	1958-59 grade-point averages	31 ^a	.38	2.68	1.70	1.88
2	1957-58 grade-point averages	29 ^b	.14	2.64	1.37	1.41
3	1957-59 cumulative grade-point averages for 17 trainees on Project for two years and 14 on Project for one year	31 ^a	.96	2.72	1.80	1.85
4	1957-58 grade-point averages for trainees on Project for two years	17	.84	2.64	1.75	1.82
5	1957-58 grade-point averages for trainees on Project for one year and terminated	12 ^b	.14	1.72	.82	.77
6	1957-58 grade-point averages for students who became trainees in their second year	14 ^a	1.23	2.90	2.03	2.06
7	1958-59 grade-point averages for trainees on Project for two years	17	.77	2.54	1.58	1.45
8	1958-59 grade-point averages for trainees who became trainees in their second year	14 ^a	.38	2.68	1.85	2.00
9	1957-59 cumulative grade-point averages for trainees on Project for two years	17	.96	2.33	1.67	1.63
10	1957-59 cumulative grade-point averages for trainees who became trainees in their second year	14 ^a	1.16	2.72	1.95	2.05

^a One trainee who was awarded a grant beginning in September 1958 was terminated in February 1959. He was replaced with a trainee whose award began in February 1959. Both trainees' grade-point averages are included in the above table.

^b One trainee left college and the program after two months of the first year in the program. This trainee had no grade-point average.

The sum of grade points earned for each year and the two-year total was divided by the number of credits earned, respectively. As a group, the 30 trainees have demonstrated their ability to succeed in collegiate studies and to more than hold their own with other college students in the classes of the respective colleges. The mean grade-point average for the two-year period, 1957-1959, is 1.80.

The difference between the mean grade-point average of 1957-1958 and 1958-1959 is attributable to differences in personnel of the trainees between the two years rather than to marked increases in academic performances. This fact is graphically illustrated in Items 5 and 6 in Table IV; those whose traineeships were terminated at the end of the first year (1957-1958) had a mean grade-point average of .77 while their replacements, with only the normal motivating forces of being college freshmen, had a mean grade-point average of 2.03 in the same year. The academic qualities of the group of trainees were markedly improved by eliminating and replacing with students who had demonstrated their ability to do college work.

Of the trainees who have had two years of collegiate study, the mean performance declined from 1.87 in 1957-1958 to 1.70 in 1958-1959. Possibly one or more of these factors are related to this decline: increase in laboratory experiences from two to five hours per week, enrollment in one or more advanced courses where competition with other college students is keener, involvement in extra-class collegiate activities, decline in motivation for college marks. Since both means are high for groups of

TABLE V. Cooperative General Culture Test Results

Item	Description	Number	Total	Social Studies	Literature	Science	Mathematics	Fine Arts
1	Median percentile rank, 1959 ^a ...	30	94	92	86	82	92	79
2	Median percentile rank, 1958 ^a ...	30	90	88	80	80	88	75
3	Median percentile rank, 1957 ^a ...	17 ^b	60	60	60	50	60	60
4	Difference between mean raw scores of 1959 and 1958.....	30	5.5	1.3	.6	1.4	1.9	.3
5	Mean gains of individual 1959 scores over 1958 scores.....	29	5.5	1.3	.4	1.8	1.9	.3
6	Lowest percentile rank, 1959 ^a ...	30	45	50	15	25	40	25
7	Highest percentile rank, 1959 ^a ...	30	99	99	99	99	99	97
8	Median percentile rank of original 30 trainees, July 1, 1957 ^a	30	55	50	55	50	60	50
9	Median percentile rank of trainees who were terminated by July 1, 1958 ^c (1957).....	14	47	55	50	42	50	55
10	Median percentile rank of trainees who became trainees in their second year ^c (1958).....	12	96	88	82	92	92	82

^a Cooperative General Culture Test, College Sophomore norms used.

^b Trainees for whom 1957 data were available.

^c Taken from Kenneth R. Doane and William J. Scanlan, "Teachers Are Recruited and the First Year of College and Laboratory Experiences Are Accounted for in St. Paul," *The Bulletin of the NASSP*, Jan. 1959, pp. 143, 144.

college students, only nominal concern is justified at this time. Eleven of the trainees did achieve a higher grade-point average in the second year as compared with the first year.

General Culture Test Results

Contemporary literature in teacher education and teacher recruitment emphasizes both intellectual depth and breadth as requisites to secondary-school teaching in this age of complex ideas. Performance upon standardized tests drawn from the common curricular areas of higher education may represent a criterion of intellectual breadth.

The trainees have taken the *Cooperative General Culture Tests* as a part of the battery of criteria used in selecting trainees and as an evaluative measure within the five-year experiment. The percentile ranks are based on college sophomore norms. The median percentile rank (college sophomore norms) for the group of 30 trainees is in the upper quartile for all areas and the total score on the battery. These results confirm the academic performance and the estimates on mastery of subject matter made by project teachers.

Though gains in performance on the parts and the total were evident for the group taken as a whole during the 1958-1959 college year, they are less than the gains noted during the preceding year. Perhaps this fact is similar to the ease with which a high jumper can increase his jump from 4' 6" to 5' 6", but each inch of height above that point requires inherent potential, coaching, and much practice. Perhaps the trainees are reaching their respective ceilings. The mean gain for the 26 trainees of 1957-1958 for whom gains data are available was 13.9 in total score; this is to be contrasted with 5.5 noted in Item 5 of Table V.

Items 9 and 10 are commentary on the effect on group performance when the lower end of a distribution is replaced by other trainees who perform at a higher level on the *General Culture Tests*. However, 20 of the trainees did make gains during the 1958-1959 year; a few gained more than 20 points in total score.

Minnesota Multiphasic Personality Inventory

The *Minnesota Multiphasic Personality Inventory* was administered as one element of the original battery of selection criteria. The *Inventory* was given to the trainees in May 1959 to study personality structures and changes. With the possible exception of occasional nominal elevations in the K-scale, the profiles were representative of normal college students in their second year of collegiate study. Analysis of changes in profiles from year to year indicated no significant changes in the 24 cases for which 1958 and 1959 data were available nor in the 17 cases for which 1957, 1958, and 1959 data were available. Review of profiles of trainees whose awards had been terminated after one year concluded no significant difference in profiles of these trainees from those who were continued and the replacements with the exception of three cases who had elevations in the L-scale. These data confirm comments made by project teachers

about the individual trainees and that the experience during the year had no harmful effects upon trainees' personalities.

Minnesota Teacher Attitude Inventory

The Inventory had been administered to all applicants for trainee awards and to trainees in May of 1957, 1958, and 1959. The mean gain of the trainees who have two full years of service was markedly greater during the first year than during the second year. The mean of the scores of the trainees who were awarded traineeships at the end of their freshman year of college was higher than the mean score of the trainees who had had one year of laboratory experiences.

The major characteristic of the results on the 1959 administration of the *Minnesota Teacher Attitude Inventory* is variation among individuals. The minimum score was -24 and the maximum score was 67. This range (91) was exceeded in both the 1958 and 1957 administrations of the *Inventory*.

The median percentile rank of the original 30 awardees in 1957 using high-school seniors' norms on the *Inventory* was 40. From the available data for those who completed the first year of the Project, the median using college freshmen norms was 70. Using secondary-school academic sophomores as norms, the median percentile rank was 15 in 1959. Future results may indicate conclusions that are not now evident.

Eighteen of the trainees* who completed the second year of the experiment (1958-1959) had a gain in score during the year. Seven of the trainees who have spent only one year on the Project, their second

TABLE VI. Minnesota Teacher Attitude Inventory Results

Item	Description	Number	1959 Results	1958 Results	1957 Results
1	Means of scores of trainees on Project for two full years	17	18.6	16.8	0.5
2	Means of scores of trainees on Project for second full year, only	12	22.3	25.2	
3	Means of scores of trainees who completed first year but were terminated on July 1, 1958 . . .	8 ^a		15.5	5.1
4	Means of scores of trainees who began first year but were terminated before first year was completed	4			15.3
5	Means of scores of trainees who completed the second year of Project	29 ^b	20.1	20.3	
6	Means of gains of trainees who completed the second year of Project	29 ^b	-0.1		
7	Means of gains of trainees on Project for two full years	17	1.8	14.9	
8	Means of gains of trainees on Project for second full year, only	12	-2.8		
9	Means of gains of trainees who completed first year but were terminated on July 1, 1958 . . .	8 ^a		10.4	

* Data available on eight of nine trainees.

^b Complete data available on 29 trainees.

collegiate year, had a gain in score. There is little difference between the means of scores on the *Inventory* available on the trainees at the beginning and the close of the second year.

Consultant's Evaluations

The consultant gave the Advisory Committee a report that included an evaluation of each teacher trainee at the close of the 1958-1959 academic year. The following criteria were used:

College marks for academic year 1958-1959 and previous college marks.

Scores on general culture tests at close of academic year 1958-1959.

Attendance and contributions at seminars during academic year 1958-1959.

Informal conferences and evaluations made as a result of these conferences between project teacher and consultant.

Formal conference with teacher trainee, project teacher and consultant.

Written evaluation of the trainee by two project teachers with whom the trainee worked. He worked with one project teacher for 50 clock hours and with a second for 75 hours.

Table VII gives the evaluation for each of the 30 trainees. The evaluation of 4 is considered excellent or outstanding; 3 is considered good or above average; 2, average; 1, below average; 0, very poor. A score of 4 or 3 indicates that a trainee has already exhibited potential as a teacher. (These teacher trainees have completed their second year in college.) A score of 2 indicates that there were certain limitations that must be over-

TABLE VII. Consultant's Evaluations Reported to Advisory Committee
June 1959

<i>Code</i>	<i>Rank</i>	<i>Major</i>	<i>Reasons for Rating</i>
5801	3	Mathematics	Good risk as a potential mathematics teacher. Has had reasonable success in all areas.
0110	3	Mathematics	Good risk as a potential mathematics teacher. Good college marks, reasonable success in all areas.
0586	0	Business Education	Inadequate preparation in area where he expected to major. Non-verbal personality. Seemed poor risk as future secondary-school teacher.
0658	2	Science	Satisfactory academic achievement for potential science teacher. Shy. Seems to lack initiative and drive in the classroom.
0757	2	Music—Vocal	Good academic preparation for potential music teacher. Lacks strong desire to be a teacher.
5802	3	Social Studies	Adequate academic preparation for potential social studies teacher. Needs to learn to conform in certain areas. Has been reasonably successful.
5804	2	English and Social Studies	College marks below average for academic year 1958-1959. Must learn to plan a schedule and follow it.
5806	3	Mathematics	Good risk as a potential mathematics teacher. Has a tendency to neglect certain courses in college.
4811	4	English	Excellent potential as English teacher. Could get better college marks.

Table concluded on next page.

<i>Code</i>	<i>Rank</i>	<i>Major</i>	<i>Reasons for Rating</i>
1261	2	Science	Good college student. Needs to learn to be a more positive person in the high-school classroom.
1473	2	Music—Vocal	Good academic preparation as a potential music teacher. Needs to become a warm positive personality in the classroom.
5808	4	Mathematics	Excellent potential as mathematics teacher. Has had reasonable success in all areas.
5810	4	Speech	Excellent potential as speech teacher.
5811	2	Science	Good college marks. Shy. Is beginning a new major (science).
2218	2	Core	Charming personality in classroom with junior high-school youngsters. Teacher trainee has a health problem.
5803	3	Music—Vocal	Good academic preparation for potential music teacher. A little shy. Should be able to overcome this.
49112	2	Core	Good potential as a junior high-school core teacher.
2575	1	Music—Vocal	Poor potential as music teacher. Fails to exert influence in class. Ineffective in the classroom to date.
5111	2	Award terminated; elementary education; plans to be married.	Terminated in June 1959. Plans marriage a year hence. In the meantime will prepare herself to be an elementary-school teacher; decided not to be a secondary-school teacher.
5812	2	Social Studies	Has good recommendations from one project teacher and poor recommendations from a second project teacher. Has the potential to be successful as a social studies teacher.
2886	2	Mathematics	Has the potential to be a high-school mathematics teacher if he works at it hard enough. Let his college marks suffer this last year. Immature social behavior at times. Is developing satisfactorily.
2948	2	Social Studies	Has potential to be a high-school social studies teacher. College marks are slightly below C average at present. Works hard and has had success in the classroom to date.
3066	2	English	College marks declined markedly for second year in college. Has a C average to date. May have difficulty with a major in English in college. Has been successful with one project teacher, but less successful with a second. Due partly to his limited preparation to teach English.
5805	3	Social Studies Award terminated; plans marriage	Plans for marriage caused resignation. Has excellent potential as a classroom teacher.
5809	2	Business Education	Good potential as business education teacher. Has been on Project only one semester to date.
5321	3	Social Studies	Excellent potential as a classroom teacher. Good college marks to date.
3424	3	Award terminated; changed vocational plans	Plans to study for the ministry.
5816	3	Science	Good potential as high-school science teacher. Excellent college marks. Has been trainee one year only, but has had success in all areas.
5807	4	English	Excellent potential as English teacher. Has been on the program one year only, but has been successful in laboratory experiences.
4250	3	English	Good potential as English teacher. Is shy, but should overcome this with more laboratory experience.

come. In two cases a score of 0 or 1 was given. In the case where the 0 was given, the trainee's grant was terminated. In the case where the 1 was given, the trainee was encouraged to overcome her difficulties, but she was placed on probation for the next academic year by the Project Advisory Committee. Four trainees were given a rank of 4; 11, a rank of 3; 13, a rank of 2; 1, a rank of 1; 1, a rank of 0.

Trainees Whose Grants and Status Were Terminated

The St. Paul Teacher Recruitment Project has sought to tap a new source of secondary-school teachers by providing scholarships to well-qualified high-school graduates who might not otherwise attend college because of financial limitations. To June 30, 1959, there were 44 teacher trainees—24 women and 20 men—who had received grants of money for one or more semesters in college. Eighteen of these trainees—8 men and 10 women—were terminated after having received a grant for one or more college semesters. Table VIII describes the awardees who have had their grants terminated.

In five cases, Nos. 1, 5, 11, 12, and 13 in Table VIII, young women were terminated because the five married or were about to be married. The policy of the Advisory Committee has been one in which scholarships have been given with the expectation that the trainees would be secondary-school teachers at the end of the 5-year program. To date, the policy has been one of discouraging marriages of trainees. Therefore, trainees who marry are terminated.

In three cases, Nos. 6, 10, 16 in Table VIII, the trainees have changed their vocational plans from public secondary-school teaching to plans involving the ministry or the Catholic Sisterhood.

Academic failure accounts for four men, Nos. 2, 7, 8, 17. All four cases occurred during the trainees' first year in college.

In two cases, 4 and 15, financial difficulties played an important part. Multiple causation, rather than a single case, helps explain the reasons for the two leaving the program. In addition to financial difficulties, poor college marks and changes in vocational plans are important in these two cases.

The five remaining cases cannot be grouped and generalized. In Case 9 the trainee remained in college less than one semester. She was terminated because of her lack of interest in college and in the Project. Case 18 remained in college but one semester. The trainee didn't show any interest in the Project, preferring to work long hours on a part-time job. Plans for marriage within the foreseeable future apparently added to the dilemma as far as this trainee was concerned.

Case 14 was a trainee who remained on the program for one semester, only. He was chosen as a trainee after having completed one successful year in college. During the one semester he was a trainee, his marks declined. He transferred to another college and was terminated. Thus, dissatisfaction with his particular college, a desire to change colleges,

and poor college marks for that semester are all important to this trainee.

Some trainees whose grants were terminated did remain in college. The three trainees who were terminated because they planned careers in various phases of Christian religious work expect to continue in college and are doing so at this time. In two instances of future plans for marriage, the collegiate future is uncertain. Both trainees indicated plans to be in college during the academic year 1959-1960.

A major purpose of the Project has been to recruit teachers by awarding grants to qualified high-school graduates who exhibit potential as secondary-school teachers, but who otherwise would not prepare for secondary-school teaching because of financial limitations. For 18 of the 44 trainees who were awarded such grants, the Project has not been successful. They were terminated for various reasons—early marriage, other vocational plans, academic failure. However, it must be kept clearly in mind that 26 young people who have received such grants *continue* as trainees and apparently are good potential as future secondary-school teachers.

TABLE IX. Potential Trainees Who Did Not Receive Any Grant

Code	Sex	GCT Percentile	MTAI, Form A, Percentile*	Stated Reason for Termination
0471	F	55	25	Moved from geographical area
5818	M	70	95	Marriage plans in immediate future
5813	F	95	99	Financially able to remain in college without scholarship
2446	M	15	60	Marriage before he entered college
5815	F	82	99	Financially able to remain in college without scholarship
5820	M	98	99	Financially able to remain in college without scholarship
3593	F	15	25	Marriage before she entered college

* University Freshmen Norms.

Three of the prospective trainees, referred to in Table IX, Code 471, 2446, 3593, were among the original 30 trainees chosen to begin college in September 1957. None began the program. The remaining four prospective trainees were chosen to begin the program a year later in September 1958. Three of the four prospective trainees—Code 5813, 5815, and 5820—decided they were financially able to finish college without the aid of the grant since the Project required five years in college study. All three remained in college during the past year and received sufficient financial help independent of the Teacher Recruitment Project. An interesting aside is that college students often feel in dire financial need in June, at the end of an academic year, but feel more prosperous and more secure in August after summer employment at reasonably high wages. Such was the case with the three prospective trainees—5813, 5815, 5820. In the last case (5818) to be accounted for in Table IX, the

candidate changed his mind because of plans for marriage and planned not to return to college.

One cannot generalize in detail concerning the academic potential of the candidates referred to except to note that for the *Cooperative General Culture Tests* total score, five of the seven have aggregate total scores above the median of college sophomores which may indicate ability to succeed in college. Three of the five had demonstrated ability to succeed in college since the three had completed one or more years in college with good academic marks.

Accounting for Teacher Trainees

Forty-four teacher trainees have received scholarships from July 1, 1957 to June 30, 1959. These 44 scholarship winners—24 women and 20 men—who have received financial assistance for one or more semesters were chosen from a total of 85 applicants to date. Of the 44 who received grants, 18 have been terminated for one reason or another.

TABLE X. Trainees Expected To Enter Third Year (1959-1960)

June 30, 1959

Code	Sex	Major	Academic Grade-Point Average	Composite GCT % Rank 1959	MTAI % Rank 1959	Number of Years as Trainee	College
5801	F	Mathematics	1.56	91	10	1	Hamline
0110	F	Mathematics	2.09	99	70	2	Hamline
0658	F	Science	1.63	98	5	2	Macalester
0757	F	Music	2.07	88	5	2	Bethel
5802	M	Social Sciences	2.03	95	10	1	U. of M.
5804	M	English	1.16	93	30	1	St. Thomas
5806	M	Mathematics	1.26	99	20	1	Hamline
4811	F	English	1.68	95	10	2	U. of M.
1261	M	Science	2.17	96	25	2	Macalester
1473	F	Music	2.33	88	30	2	Hamline
5808	M	Mathematics	2.37	99	10	1	St. Thomas
5810	M	Language Arts	2.00	99	50	1	U. of M.
5811	F	Science	2.16	97	1	1	Hamline
2218	F	English	1.35	98	60	2	Macalester
5803	F	Music	2.41	91	50	1	Hamline
5809	F	Business Education	2.69	90	60	1/2	Hamline
49112	F	English	1.47	88	40	2	U. of M.
2575	F	Music	1.39	45	10	2	Macalester
5812	M	Social Sciences	1.56	97	5	1	U. of M.
2886	M	Mathematics	1.38	94	30	2	U. of M.
2948	M	Social Sciences	.96	60	5	2	Macalester
3066	M	English	1.04	85	5	2	Hamline
5321	M	Social Sciences	2.30	91	30	2	U. of M.
5816	M	Science	2.72	99	25	1	U. of M.
5807	F	English	2.05	96	50	1	Macalester
4250	F	Language Arts	2.28	93	5	2	U. of M.
Total			48.11	2364	651	39.5	
Number			26	26	26	26	
Mean			1.85	90.9	25	1.52	
Median			2.015	94.5	23	2	

As of June 30, 1959, there were 26 teacher trainees—12 males and 14 females—on the program and ready to begin the new academic year 1959-1960 in the fall. Eight of the trainees indicated that they planned to major in English; five, in mathematics; four each, in social studies, science, and music; and one, in business education.

The academic success of the group is good as measured by college marks and grade-point averages. The mean grade-point average (Table X) for the 26 trainees is 1.85; median, 2.015. This represents approximately a B— average for the group as a whole. Fourteen of the 26 trainees—7 males and 7 females—have 2.00 (B) averages or better. The grade-point average of only one trainee was less than 1.00 (C) for the two years of college work. As a group, the academic success as measured by college marks was above average. The same 26 teacher trainees as a group have excellent percentile ranks in terms of the total *Cooperative General Culture Test*, college sophomore norms; 20 of the 26 have percentile ranks at the 90 percentile or above. The median percentile score is between the 94 and 95 percentile. One trainee had a total percentile score below the 50 percentile.

Fourteen of the 26 teacher trainees ready to begin the new year of the program had completed two years as trainees; 11 had completed one year as trainees; one trainee had completed but one semester on the program. As a group, they seemed to be good risks in terms of academic success as measured by academic grade-point averages. They, likewise, seemed to be good risks in terms of percentile rank on the total score of the *Cooperative General Culture Test*—the median percentile score being 94.5 for the 26 teacher trainees.

The 26 trainees indicated they will attend five colleges as follows: University of Minnesota, 9; Hamline University, 8; Macalester College, 6; St. Thomas College, 2; and Bethel College, 1.

PROJECT TEACHER PARTICIPATION

Teacher recruitment, teacher education, and teacher utilization are the three phases of the program commonly referred to as the St. Paul Teacher Recruitment Project. The teacher education part of the program is a combination of the efforts of the leading colleges in the St. Paul-Minneapolis metropolitan area and the St. Paul Public Schools. The Project seeks to educate college students for teaching in the public secondary schools of St. Paul. During the academic year 1958-1959, the 30 trainees were in the classrooms in the St. Paul Public Schools for 125 clock hours. Much of this time was spent in laboratory work in which the trainees were making practical applications of theory in teacher education. The theory is important and it must be understood to be useful. The project teacher must know the theory and be able to make practical applications in the classroom that will be beneficial both to the pupils and to the young trainee who is learning to be a secondary-school teacher.

The Project Advisory Committee has been cognizant of these aspects in approaching the teacher education aspect of the project. Classroom teacher participation has been uppermost in all plans that have been made. The secondary-school classroom teacher who participates in the St. Paul Teacher Recruitment Project is referred to as the Project Teacher.

Workshops related to the St. Paul Teacher Recruitment Project have been held during the summers of 1957 and 1958. The third workshop in the series was held in the academic year 1958-1959, for one day each week for a period of eight weeks. A total of 71 secondary-school teachers have participated to date in one or more of the workshops as follows: 40 teachers attended the Summer 1957 Workshop; 46 teachers attended the Summer 1958 Workshop; 29 teachers attended the workshop that extended for a period of eight weeks from February to April 1959. Nine project teachers attended three workshops; 26 attended two workshops; 36 teachers attended one workshop to date. Since 643 teachers were employed in the St. Paul secondary schools during the year, 11 per cent of the total faculty have attended one or more of the workshops.

Fifty-four teachers have had one or more teacher trainees during the two academic years 1957-1958 and 1958-1959. The number of trainees these project teachers had follows: 1 project teacher has had 6 trainees; 4 project teachers have had 4 trainees; 8 project teachers have had 3 trainees; 15 project teachers have had 2 trainees; and 26 project teachers have had one teacher trainee.

Sixteen of the 54 project teachers who had one or more trainees during the two academic years had not been at any one of the three workshops. Thirty-three project teachers who attended workshops have not had trainees to date. Potentially, these teachers are project teachers trained to work with teacher trainees on the St. Paul Teacher Recruitment Project. Ideally they have learned more about teacher education and are better equipped to work with student teachers who come to them for traditional laboratory experiences.

The 1959 Teacher Education and Teacher Utilization Workshop began on February 25, 1959, and extended for eight meetings. The objectives of the workshop were as follows:

1. To help the Project Teachers understand their role in the Teacher Recruitment Project. (Recruitment, Education, and Utilization of Teacher Trainees.)
2. To clarify procedures of Project Teachers and Trainees working together.
3. To make preparation for the Teacher Utilization phase of the Project.

CONCLUSIONS

The St. Paul Teacher Recruitment Project has completed the second year of a five-year program. To date, recruitment and teacher education have been the major objectives. The offering of scholarships to able high-

school graduates who are considering secondary-school teaching is not a clear-cut definitive answer to the teacher shortage. For some high-school graduates who are potentially good risks academically, scholarships help answer the need for teachers in a period of teacher shortage; for others who seem to be equally good risks, scholarships are not the answer. As of June 30, 1959, at the close of the academic year, 14 teacher trainees had completed their second year in college and their second year on the Teacher Recruitment Project; 11 additional teacher trainees had completed one year on the Project and their second year in college; one additional teacher trainee had completed one semester on the Project and her second year in college.

Eighteen trainees have left the program after having received a grant for one or more semesters in college. Early marriages of young women, changed vocational plans, academic failure, poor college marks—all played important parts in accounting for trainees who were terminated.

By June 30, 1959, there were 44 teacher trainees—24 women and 20 men—who had received grants of money for one or more college semesters. Twenty-six of the 44 teacher trainees are in college and are preparing themselves to be secondary-school teachers, looking forward to teaching in the St. Paul Public Schools. Four additional trainees were chosen before colleges opened in the fall of 1959 to fill vacancies—thus, the complement of 30 teacher trainees are in college.

The academic year 1958-1959 saw the 30 trainees in the high-school classrooms for 125 clock hours of laboratory experiences under the direction of project teachers who guided their experiences. The academic year 1959-1960 will find 30 trainees in five colleges prepared to do college work in addition to increased hours of laboratory experiences in the high schools. The financial assistance these young people are receiving should enable them to remain in college until they have completed their preparation for secondary-school teaching.

The High School Principal in Newton, Massachusetts, Reacts to Re-deployment

HAROLD HOWE II

A THREE-YEAR comprehensive high school, with more than three thousand students and something in excess of one hundred and fifty staff personnel, is necessarily a complex organization. At Newton High School this complexity is reflected in multiple curricula, in a wide variety of specialized services, and in a constant process of change directed toward improving the quality of education available to the students. For the past three and one-half years, this process of change has been accelerated by a major commitment to experimental ventures in secondary education.

The ventures have involved faculty, administration, and student in new patterns of organization, novel methods of instruction, and fresh approaches to the curriculum in a variety of subject fields. Started with ideas or theories originated by teachers in our own school, these projects have received encouragement and support from the Fund for the Advancement of Education, from the School-University Project for Research and Development at Harvard University, and from the National Association of Secondary-School Principals' Commission on the Experimental Study of the Utilization of the Staff in the Secondary School. Not only financial support, but also valuable suggestions have flowed from these sources to Newton High School in a way that has encouraged our teachers to maintain a determined attack on some of the persistent problems which plague secondary education in the United States.

Our experimentation and study have been concerned with various questions: whether we can take advantage of the growing maturity of senior high-school students to give the individual more responsibility for his own education; how to produce a better quality of learning; to what degree larger student groupings can result in more effective instruction; how to utilize modern audio-visual aids as an integral part of the teaching-learning process; how to extend beyond his own classroom the talents of the particularly skillful teacher; whether it is possible to further professionalize the teacher's role, and, therewith his salary, through the redefinition of his job; and how the secondary school may better cooperate with the university, both as a laboratory for the improvement of education, and as an institution for the training of able secondary-school teachers.

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In working on enterprises directed toward answering these questions, of necessity we have faced the problem of bringing radically new procedures into an institution already operating along well-tried traditional lines. We have not attempted to redirect our entire school program into new forms of organization. Instead, we have arranged carefully limited areas of experimentation and then freed personnel to carry through specific projects. While the financial assistance from outside sources has been a contributing factor, we never could have undertaken these ventures had we not possessed, in Newton, two other invaluable resources: an adequate number of faculty members qualified and willing to experience the adventure, excitement, frustration, and hard work involved in climbing out of familiar ruts; plus top administrators and a school board who have supported strongly these innovations in procedure. In connection with this latter point, it should be made clear that although we have had foundation grants to help with special expenses, the City of Newton has also provided resources which have exceeded the amount of these grants from outside sources. Even more important than the matter of financial support is the atmosphere of freedom in which we have been able to operate. Any genuine experimentation must carry the possibility of failure, as well as that of success; in Newton, teachers working on novel enterprises, whether for the benefit of the local system or for that of American education at large, have been given the feeling that they would be protected in failure and encouraged in success. That this atmosphere prevails in our community is a tribute to our enlightened school board and to our understanding parents.

The educational experimentation now under way in Newton High School consists of three distinct projects:

1. The school staff study, supported by the NASSP Commission, has a variety of implications for the definition of the teacher's role, for the use of large-group instruction, for the development of new teaching techniques, for the implementation of teacher-training activities, and for the redesign of the curriculum.

2. The contract-correcting project, sponsored by the School-University Program for Research and Development at Harvard University, is designed to alleviate the problem of teacher load as it relates to instruction in English composition and to do this by employing specially trained, but non-professional, personnel to assist in the correction of English papers.

3. The foreign language project, likewise sponsored by the School-University Program for Research and Development, is an attempt to make better use of teachers particularly proficient in the oral-aural aspects of foreign language by having them prepare special recordings and, thus, to capitalize upon the capacity of teenage students to teach themselves in these aspects of foreign language, by providing them with these recorded materials that have been co-ordinated closely with regular class instruction.

These three projects, of which the first is by far the largest in scope, constitute what we have come to call the "Newton Plan." Rather than attempt to describe here all the details of these efforts, let me refer the reader to two previous reports in *THE BULLETIN* of the National Association of Secondary-School Principals. The issue of January 1958 carried an article by Floyd Rinker in which he set forth both the theory and the results of one year's experience with this program. In January of 1959, *THE BULLETIN* printed an extensive article by Henry Bissex, giving a report of further developments. In my descriptive material here, I shall restrict myself to a statement concerning activities in the school year 1958-59, and developments in the first three months of the year which started in September of 1959. The remainder of this article will consist, then, of the consideration of four topics:

1. A factual report on the school year 1958-59, plus some observations on operations in effect during the current year.
2. A brief exploration of the scheduling problem as it relates to new and diverse patterns in the secondary school.
3. A description of our methods of administrative control of experimentation at Newton High School.
4. Some general observations about this whole context of experimentation from the point of view of the Principal of the school.

NEWTON PLAN ACTIVITIES—SEPTEMBER 1958 THROUGH NOVEMBER 1959

During the school year of 1958-59, thirteen different teachers at Newton High School served as instructors of large groups in biology, American history, many areas of English, some phases of business training, and "general education," our term—for want of a better one—to describe a series of carefully planned sessions relating to orientation, guidance, library usage, and other topics important for new students coming to a large high school. All of these thirteen teachers were working in that portion of the Newton Plan which is called the "school staff study." They prepared and presented one hundred and eighteen different large-group lessons, some of which were given as many as seven times each in order to provide the same instruction for all of the students enrolled in a particular course. The biology, American history, and general education programs in large-group instruction were new during the school year 1958-59 and, therefore, were limited in scope. Both are being expanded during the current year. The English program, with which we have been working for three full years, continued to be the one in which the greatest use was made of large-group instruction.

In all of the lectures, material of established value has been combined with originally prepared visual aids of various kinds. By far the largest proportion of this visual material was composed of transparencies designed for use on an overhead projector, and in the preparation of these one of the art instructors has been invaluable. However, other types of

visual material have been used, including slides or the demonstration variety of visual aids.

Seemingly subjects are available in abundance for development as large-group lectures. In biology, "Circulation," "Water," and "Evolution" are subdivisions of the field that have been presented successfully; typical topics in American history have been "The Civil War" and "The Frontier." Because large-group instruction is applicable to so many areas in English, the lectures may deal with such skills as letter writing, paragraphing, the preparation of the research paper or with material of more inspirational nature such as poetry or reading for enrichment. Instruction in personal typing is one phase of business training in which large-group instruction has been satisfactory indeed. In general education, the use of the library, the development of study habits, and some aspects of student orientation have been discussed. Particularly worthy of note, as a new addition in the last school year to our school staff study, was this series of orientation lectures, developed by a guidance counselor for students in our business curriculum. Many of these young people have had major adjustment problems in moving into a large high school, especially since their area of study represents a definite minority group. These lectures on guidance and orientation have improved significantly both the morale and the performance of our business curriculum sophomores during the past year, and have led us to expand efforts of this kind during the opening months of the present school year.

For 1958-59 much of the material presented by teacher-lecturers to groups, varying in size from fifty to two hundred, had been prepared during a summer workshop held before the school year opened. During the summer of 1959, a similar workshop was attended by some forty-five teachers. Not alone did this session provide an opportunity for the preparation of materials in large-group instruction; it likewise encouraged cooperative planning of the year's work by instructors of large groups and those other teachers who would meet the same students in small classes.

The eagerness of teachers to attend the workshop, in August of 1959, the fourth such summer activity we have had at Newton High School, indicates that the school which would be imaginative about its curriculum and its methods must think increasingly about providing in the summer paid opportunities for teachers to work on new approaches. Unless advance planning is made possible, the hectic pressures of school life during the winter session undoubtedly will hamper or make nearly impossible creativity on the part of even the most enthusiastic teachers.

So far as the school staff study in Newton High School is concerned, the school year 1958-59 was a period of consolidation and self-examination. While the number of teacher-lecturers was maintained, certain other practices we had tried in past years were either dropped or altered. For instance, our earlier attempts to include in large-group instruction students with a wide spectrum of ability and interest had presented

some difficulties. Consequently, last year, instead of assembling in the large group students of diverse abilities, we attempted to make most of our large-group sessions in the subject matter fields reflect the normal ability groupings present in Newton High School. Whereas, for the past several years there had been a slow build up in the number of large-group sessions in the English program, this enlargement stopped during 1958-59, and the emphasis was placed on quality of presentation without further expansion of the number of lectures.

To co-ordinate large-group instruction with that characteristic of class-sized groups remained a problem during 1958-59. In some subject areas we have been more successful than in others in this matter of collaboration. By this time we have come to believe that the teacher-lecturer, to be successful, probably must function as a member of a team, rather than as a lone wolf who occasionally collects the classes of other teachers who have had relatively little share in planning the nature or the timing of his activities.

The 1958-59 year has presented its difficulties and problems. Because, to some degree, our large-group teaching procedures have been superimposed on a school program built along traditional lines, we have had scheduling problems. Some of these I shall discuss later, in greater detail. Certainly the energies of teachers have been strained, for the demands of a large high school with a variety of activities have combined with these new projects to place pressures on the staff. We have attempted, by releasing teachers from classes and certain other duties, to lessen this problem wherever we could, but we have not been able to do this on a large scale. Consequently, a portion of the success of our school staff study results from the willingness of teachers to give extra time and effort. We have tried in a small measure to compensate for some of this service by additional pay, but here again there have been definite limits to what we were able to do.

Although we have had problems of the kinds mentioned above, it is my judgment that in 1958-59 there were distinct gains. To an increased degree, new procedures have been accepted by both students and faculty; our large-group instruction has been refined in terms of quality; and a variety of worth-while side effects have induced us to incorporate other innovations into our procedures. While some of these efforts will be mentioned in the general observations at the end of this article, others have been introduced already into our program.

Early in 1958, we became aware of the need to identify a new teaching role—that of the teacher-researcher. This person is the teacher who has proved to be particularly skillful in the preparation of curriculum materials for the use of other teachers. As a first step, we appointed three such teacher-researchers in the English department. They conceived their immediate task to be a revision of the course of study for each curriculum and, on time borrowed from other responsibilities, they began work at

once. From pupils, recent graduates, colleges, and employers; they sought information; they presented their findings to the department and welcomed suggestions from their colleagues. At the 1958 summer workshop, they formulated a tentative revision of the courses of study, and these were tested in all classes during 1958-59. The aim of the researchers has been to develop in an orderly sequence the basic reading and writing aims appropriate to each grade level; to integrate instruction so that there should be no repetition in the classroom of those topics now taught in Newton High School through large-group lectures; and to assure greater uniformity, among our approximately forty English teachers, in the presentation of every aspect of that subject. In the spring of 1959, by conferences and questionnaires, the researchers evaluated the experimental courses of study. At the 1959 summer workshop, the researchers made further adjustments in the courses, wrote supplementary suggestions for their use in the classroom, and devised uniform diagnostic and achievement tests for two grade levels. Full well these teacher-researchers realize that they have not completed their task; they now are constructing half-year tests and, with the assistance of other members of the department, are preparing composition materials to supplement large-group instruction.

As we watched the development of this new phase of teacher activity, we decided to expand the scope of it. For this present school year, we have appointed an additional teacher-researcher—this one to assist with the preparation of materials for large-group instruction in biology and to co-ordinate large-group instruction with that in the regular classes in that subject.

With the opening of school in September 1959, we made still other changes in our school staff study operations. We appointed two more full-time teacher-lecturers—one in the area of English and the other in biology. This represents a major move on our part in the specialization of the role of teachers, and it certainly indicates our commitment to the belief that this specialized role of the large-group instructor is worth continuing. With the creation of a full-time lectureship in biology, we have embarked on an extensive co-ordination of large groups and small groups in that subject field. Our able college preparatory students in biology will find this year that their programs are somewhat similar to those which sophomore English students at Newton High School have experienced for the past several years. In other words, in each week a large-group session will be followed by a series of three small-group sessions. Already it is clear that we have been particularly successful in biology in working out a team concept whereby the teacher-lecturer, the teacher-researcher, and the small-group instructors in the course can cooperate. We have high hopes for the success of this program during the remainder of this school year.

A further major and novel emphasis in connection with the school staff study during the present school year is the use of the teacher-lecturer as

part of a teacher training operation. After extensive exploratory discussions with the faculty at the Harvard Graduate School of Education, we have devised a two-year post-graduate teacher training program which seems to offer many advantages. This program is designed to attract to the teaching profession the outstanding Liberal Arts college graduate, and to do this by enabling him, immediately after graduation from college, to move directly into the secondary school and to begin there to teach under very close supervision. Harvard has designated these special trainees as "Plan C Interns," and has called the enterprise on which we are jointly embarked the "Team-Teaching Program for Teacher Training."

In this new teacher training program, the key person is the teacher-lecturer. Because he has accumulated a backlog of material, the teacher-lecturer needs to spend less time in research for his lectures. Also, he teaches large groups for a limited number of hours each week and, therefore, has some time available for close supervision of these teachers in training. In turn, the plan of close supervision makes it possible for a relatively inexperienced person to start directly upon his professional career of teaching secondary-school students and, thereby, for this inexperienced person to earn a teacher's salary. Moreover, Harvard has appointed two of Newton's teacher-lecturers as associates on the Harvard faculty; thus, it is possible for Harvard to grant credit for semester hours of education to trainees actually working in the education of students at Newton High School. This year we have four such teachers in training—three in the department of English and one in biology. Next year these four teachers will do graduate work at Harvard with the benefit of perspectives gained from actual experience.

With Boston University we have a somewhat similar arrangement. Through this alliance we are providing graduate work for teachers of speech under the guidance of one teacher-lecturer in that field. For able Liberal Arts graduates there seems to be some appeal in this pattern of training, as well as in the opportunity, in the year directly following graduation from college, of earning both experience and a salary while they learn to teach.

Built into this plan of teacher training are regular seminars, conducted both by our teachers and by personnel at Harvard, for the consideration of a variety of topics important to beginning teachers. We have been fortunate in being able to plan these seminars in conjunction with a somewhat similar program now in operation at Phillips Academy, a large private school in Andover, Massachusetts. Our teachers in training and theirs will have the advantage of several joint sessions during the course of the present school year in what, we hope, will be a constructive crossing of the sometimes formidable boundary between private and public education. For anyone who wishes other details concerning this entire teacher training plan, a more extensive description is available in mimeographed form at both Harvard and at Newton High School.

In our new activities along experimental lines, we have neither lost sight of nor discontinued projects previously undertaken. With the opening of school in September 1959, our SUPRAD-sponsored contract-correcting project is entering upon its third year. Again part-time people—five ladies this year—have been employed to assist our English teachers in the correction of composition work. This whole effort is designed to demonstrate the feasibility of using non-professional personnel for absorbing a high proportion of the paper correcting work of English teachers, thus making possible both more student writing and more effective criticism of writing which is done. Throughout the past school year, our contract correctors became more confident in their performance and, therefore, of greater assistance to English teachers. At this point, it seems as if this type of procedure may present one possible avenue for the escape of English teachers from their traditional dilemma, created by large and numerous classes and the fact that writing can be taught only through careful correction of regular composition work done by each student. At least, it is our belief that contract correcting is one of the most likely areas for the utilization, in the secondary school, of semi-professional assistance above the clerical level.

Throughout 1958-59, our foreign language study under SUPRAD has continued along the lines described in *THE BULLETIN* articles to which I have referred. This summer, the head of the language department, who also is in charge of this project, put on tape all of the material to be converted into the complete set of records that will be used by some of this year's Newton High-School students. Two divisions of able college preparatory pupils will be included in this project. As was the case last year, one group who are beginning French in high school will take these records home for study of the spoken language. A second group, who last year began their French in high school and used these records for home training, will be equipped this year with a more advanced album of audio materials. We fully expect that students, by the home use of these records, will acquire so much greater facility in speaking the language that no extensive amount of classroom time need be spent on this type of drill, which can be so stultifying to able secondary-school students. Furthermore, these materials have been correlated so meticulously with the vocabulary and other lessons in the textbooks regularly used in our French classes that the students will find drill with our school records to be more advantageous than home use of the available commercial tapes and records.

THE SCHEDULING OF LARGE-GROUP INSTRUCTION

Frequently, new and promising procedures in secondary education have come to grief because it was impossible to fit them into the traditional scheduling arrangements of the public high school. Certainly the suggestions which the NASSP Commission on Teacher Utilization has made during the past few years would have been attempted even more widely in

secondary schools had administrators seen a clear way to fit these procedures into the existing patterns of time, space, and teacher activity. In the small efforts in this direction that we at Newton High School have made, we have devised no revolutionary changes in the school day or in the use of time which would overcome all the scheduling roadblocks hampering the development of Lloyd Trump's school of the future. However, we have found that there are some simple procedures which make possible the introduction of large-group instruction without completely overturning the program traditional in secondary schools. I should like to describe two of these procedures which have been widely employed in Newton High School, and then to say a few things about scheduling arrangements as we look toward further re-deployment of space, student grouping, and teacher time.

For the creation of most of our large class groups now found in the regular program at Newton High School, we have depended on the possibility of collecting similar, regularly scheduled, classes at any given period of the day. In this respect we have an advantage. We have a thousand pupils in each of grades 10, 11, and 12—in some cases, a popular elective course has so many divisions that, in any given period, we can create a large-group session simply by pulling together those divisions which, through the coincidence of the master program of the school, happen to meet at the same hour. However, in this connection we have gone beyond coincidence and have so planned our master program that we concentrate within specified periods the classes in those subjects in which we are developing large-group instruction projects. For example, in accordance with this principle, we might place nine divisions of college preparatory biology in only three periods of the school's master schedule, not spread them over all seven periods. So long as any given subject is offered in three periods, the possibility is slight that students who elect the subject will have a program conflict. Furthermore, this type of planned concentration in the master program makes possible the collection at any time of three classes of approximately thirty students for large-group instruction procedures.

In general, we tend to concentrate our large classes in the early days of the week and to schedule the follow-up in smaller sections before the diversions of the weekend interfere with a student's retention of the material presented in the large-group lecture. Yet, this sequence is not a hard-and-fast rule in our scheduling procedure. The full-time teacher-lecturer's life is so flexible that there is relatively little difficulty in adjusting his time to any pattern of large-group instruction which seems advantageous for a particular course of study. To be sure, sometimes we have found that a large-group teacher has been confronted with a day in which the same lesson had to be repeated five or six times. Naturally, such a feat is hard on the teacher, and such a massing of lectures certainly can be avoided if methods, like those mentioned, are used for scheduling large groups.

Our other major device in working on the problem of scheduling the large group has been to reserve two hour-long blocks of time each week—one on Tuesday and one on Thursday morning when the entire school is available for non-scheduled activities. We use this time for assembly programs, for home-room activities, for guidance procedures, and for large-group instruction projects. Because we are fortunate in having a number of areas in which large-group instruction can take place, good planning in the use of this time can result in our having a considerable number of large-group lectures in the course of the school year. Of course, lectures conflict sometimes with assemblies, or with other activities planned for during this "X Block"; but here again, advance scheduling can prevent such overlapping.

One of the real difficulties in all of this programming in our school has been the problem of communication. When, for the same class, students have several different teachers, meet in rooms which differ from week to week, or even from day to day as pupils meet in varied sized groups, they, and even their teachers, can become confused. This has happened in Newton High School and undoubtedly will happen again! From our experience we are convinced that any school embarking on re-deployment on a major scale must expend real energy on making sure that each person knows ahead of time where he is supposed to be next. The subject teacher can do much to prevent confusion by giving week-long assignments, indicating time and place of any meetings outside the regular classroom.

During the past year, we have been going through the process of utilizing electronic data processing equipment in our programming procedures. So far, we have used this equipment only for the development of our normal school program; we have not applied it to the creation of large-group instruction scheduling. However, the capacity of such equipment to sort and rearrange information is ideally adapted to solving the kinds of problems which come up when, in a large public high school, one attempts to vary the normal school program and arrangement of pupils in order to create groups of differing size. We hope to explore the possibilities of the use of electronic data processing equipment, including computers, for creating variable school programs, as well as for the most efficient arrangement of the entire school program.

As a further observation on this matter of scheduling, I might add that the traditional school day locks the school's activities into a time bracket, which will almost certainly have to be unlocked before the full advantages of re-deployment can be realized in any secondary school. As yet, we have not made any change in our traditional school day. But, as we confront a variety of different problems, this traditional time concept undoubtedly will be one of the first established practices to fall, particularly in the high school which does not have to face the matter of bus transportation for a large proportion of its pupils.

ADMINISTRATION CONTROL

If one thing is clear from our experience at Newton High School during the past two years, it is that special projects of the kind we have undertaken demand a tremendous amount of administrative energy and time. Not only do these projects place extra burdens upon everyone in the school's regular administrative hierarchy, but also they require the appointment of special people to co-ordinate daily activities, as well as to make detailed plans for the future. In my judgment, although a great many people in the school have shared responsibilities in an attempt to make Newton Plan activities run smoothly, we have not given sufficient time and attention to the administrative aspects of our experimental ventures.

During the school year 1958-59, administrative arrangements connected with the Newton Plan had two different aspects. The day-to-day operation and co-ordination of Newton Plan activities, and particularly of large-group lecture sessions, were scheduled first during the summer workshop. The processes of follow-up and communication were handled through the office of the acting head of the English department. In addition to this, one of our teacher-lecturers undertook the coordinating function of working with all teacher-lecturers on control of quality, use of audio-visual aids, and the development of new lectures.

Traditionally, Newton High School has had a strong departmental organization, and, as our large-group instruction processes have become better defined and further institutionalized, they have tended to move back under the umbrella of department and away from the control of those working on new experimental procedures. This correlation of new ventures with other departmental activities has seemed to me a healthy process, insofar as it has tended to build into the regular program of the school new arrangements which seem to have value. At the same time, we have had to face the possibility that a return to departmental control of all Newton Plan activities might lead to a watering down of their vigor and purpose, and to a solidifying of procedures that derive some of their strength from remaining flexible. To bridge this gap between our normal departmental structure and the diverse energies of a new and experimental program, we have had for the past two years an organization called the Newton Plan Council. This group, which meets at least once a month—sometimes more frequently—is composed of the principal, as chairman, and about a dozen people closely associated in various ways with the school's experimental activities. These people, who come from different departments, make it their business to inform their department heads of the matters discussed in the New Plan Council. While the Council deals with detailed and immediate problems, it is concerned also with the long-term developments of Newton Plan activities. The Council has been an informal organization, and its greatest value seems to me to be that it makes possible a large amount of communication with relatively little expenditure of time.

As I look back over the past two years of experimental activity, my feeling is that we would have been in a stronger position if we had appointed a single person to serve as a special coordinator for all Newton Plan activities. Ideally, this should have been a full-time person, released from all other duties to concentrate on this one task. Although we have not had the benefit of such attention to our experimental work at Newton High School, it does seem to me that we have fumbled along with some sense of purpose and with a fair amount of efficiency in terms of handling our day-to-day problems. That we have been able to do so is a great tribute to the personal sacrifices which have been made by interested teachers. Whenever something has needed to be done, someone has pitched in and done it.

GENERAL OBSERVATIONS ON THE NEWTON PLAN

The observations which make up the remainder of this article are included because they concern questions which we find that visitors at the school frequently ask. I shall have to take responsibility for the answers. Since we have a marked diversity of reactions to the new experiences we have gone through in the past few years here at Newton High School, to get full agreement on the answers would be impossible. With these reservations, let me state a few questions and attempt to answer them.

1. *How do you decide what should be taught in a large group?*

In the large group those materials can be presented in which we want all students in a given course to have a certain uniformity of instruction. In a way, these materials are the keypoints in a course; and, by presenting them in large groups, we can avoid much of the duplication of instruction that frequently enters into the educational process. Moreover, we can be certain that all students have been exposed to basic ideas, though these may and should be amplified later in small-group discussions. To be sure that fundamentals have been taught in every classroom is not always possible because of a rapid turnover of faculty, and because, in a large plant, teachers are isolated from each other and from their department heads.

Again, in the large groups, materials of highly significant content may be presented. In the usual small classroom group such instruction might not be given, either because it does not appear in textual materials, or because the organization of such content demands time and attention which are not available to many high-school teachers. We have found it especially advantageous with some of our large-group sessions in history to introduce significant ideas which result only from intensive research.

The third consideration in the selection of material for a large-group session relates to the special intellectual training and interest of faculty personnel. A given teacher may have much wider information in a certain area than has any other member of the faculty. To make this teacher's

interpretations available to all students in a course is highly desirable. We have several teacher-lecturers whose special competence has been used by scheduling large-group instruction as a means of communication.

I believe that we have had some tendency to restrict our large-group instruction to material with a high informational as opposed to a high interpretive content. Perhaps we have felt interpretive work should be done in the smaller sized class where there were possibilities for discussion. My personal reaction is that this distinction is not entirely valid, that viewpoints and interpretations can be presented effectively by large-group teachers as long as students get the opportunity to challenge, or at least to discuss, the viewpoints presented by the lecturer.

Although all of our large-group teaching is accompanied by a high visual content for the more efficient transmission of ideas and information, we have made no attempt to restrict large-group instruction to that type of material which is easily adapted to visuals. On the contrary, we have used every available facility represented in our teaching staff, particularly that of the art department, to extend the imagination of teachers in the creation of visuals to all sorts of unusual topics and ideas.

2. How do you select large-group teachers?

We have appointed as teacher-lecturers people who have been engaged in secondary-school teaching for a number of years. In addition to this requirement of experience, we have looked for some demonstration of skill in the regular classroom instruction; and, certainly, for a not-too-easy-to-define interest in the new, or even the bizarre, so far as instruction methods are concerned.

Necessarily large-group teachers have had to be people who were willing to do a great deal of extra work. More than this, they have had to possess a willingness to be trained in the preparation and use of visuals. Finally, it should be said that, although these considerations have been important in the selection of teacher-lecturers for the Newton Plan, also there has had to be the perfectly practical element of whom we could get to do this demanding job in return for the limited rewards attached to it. If I were to make one generalization about the teacher-lecturers we have, it would be that they all have a demonstrated willingness to attempt new approaches in education, and even in some cases to do it in ways with which they had certain philosophical disagreements.

3. What evaluation have you done?

Over the past two years we have had an extensive project in evaluation of the school staff study, and this will continue during the current school year. This project is a joint enterprise of the Newton Public Schools and Harvard University, and is financed by the School-University Project for Research and Development. At the close of the current school year, an extensive report is to be issued, but I will not attempt at this time to summarize what that evaluation may disclose. Those persons making the evaluation have concerned themselves with learning the outcomes of

large-group instruction, with pupil attitudes toward large-group instruction, and with teacher attitudes toward both—group instruction and toward the entire “shaking of the web” process which has affected the lives of a great many Newton High-School teachers over the past four years.

To date, we have been reassured by the evaluation that we are not providing any worse education than we were with our former highly traditional procedures—procedures which, indeed, still dominate the Newton High-School program with the exception of the rather dramatic changes which have been introduced under the Newton Plan. It is my personal feeling that, over the past several years, we have come to a greater acceptance of experimentation as desirable in secondary education, and to have developed a healthier attitude on the part of students and teachers toward the experiments in operation at Newton High School. However, this is merely my personal opinion; we shall get a great deal of evidence on this, and other points, from the detailed results of our evaluation procedures.

4. Doesn't large-group teaching place the student in a passive attitude toward education by not allowing him to participate?

Our answer to this question is that these fears are unfounded, if the large-group teaching is well done. Certainly, merely talking in vague generalizations by the traditional lecture method before a large group of secondary-school students proves very little. The worst evils of the college lecture system, in which the aged professor pulls from the bottom drawer of his desk the notes made twenty years ago in order to repeat them before still another class, must be avoided by secondary schools if they would use large groups effectively.

The value of the visual demonstration as an attention-getter, an awakener, and a communications device is the central factor in our large-group instruction. It solves the problem of keeping the student alert and participating. In addition, we have made definite and clear requirements about the taking of notes and, indeed, we provide large-group instruction in how to do this. Then, many of our teacher-lecturers use a limited response from the large class as a method of keeping students on their toes throughout a lecture, but there is general agreement that this has to be a limited response. The physical arrangements of a large class do not lend themselves to one student's learning through another's observations, and certainly a damper is placed on student participation by the psychological hazard of speaking up in a large class. Some teacher-lectureres look for one- or two-word responses, or simply for a raising of hands to indicate understanding or the opposite.

The total planning of a lecture in terms of its pacing, its content, the amount of information it tries to convey, and, most important, its organization has a significant effect on the degree of involvement of the student. In working with large-group instruction at the secondary-school level, we have given a tremendous amount of attention to these matters, prob-

ably more attention than is usual in colleges where the motivations of the individual student may make it unnecessary, though not necessarily unwise, for the lecturer to plan so carefully. With these objectives in mind, before material is presented to students, we have subjected many of our teacher-lecturers who have prepared large-group lessons to prolonged and detailed criticism of their large-group lessons by other teachers in the school. It is my personal opinion that the best of large-group instruction really challenges the student, and does not involve the danger of passivity frequently brought up as a criticism of it.

5. *Are there any limitations on the size of a group for large-group instruction?*

Here I have nothing to offer but the opinion of our teacher-lecturers, among whom, I hasten to add, there is some disagreement. Some instructors feel that the only limitations on the size of a group are the readability of visuals, and adequate acoustics; others believe that, as a group moves above a certain size—approximately 150—it becomes more difficult for the teacher's personality to be a truly effective factor in instruction; size can destroy an element in large-group instruction which, to some of our teachers, makes it superior to most modern television instruction. Quoted below is a replay from one of our teacher-lecturers to a questionnaire I sent out on *Criteria for Large-Group Instruction*. Perhaps this excerpt will give some light on possible answers to the question above:

Readability of visuals is critical in any presentation—in any classroom, for that matter. This matter of the limitations on group size is a complex question. However, in teaching study techniques for the student, for example, I think the group may be almost any size; for, like Billy Graham, the teacher is exposing the pupil to himself and his habits of study, selling the pupil new techniques by revealing the inadequacy of his present techniques. The lecturer is not asking the pupil to do or understand anything; he is only to be repeatedly shocked into a recognition of his various study shortcomings—resulting in his making a private resolve to try some of the techniques being suggested.

In teaching a topic like paragraphing, however, I think that the group limits should be approximately 150. The instructor is developing ideas of a sequence variety—not merely an additive variety as in a study habits lecture. If the group numbers over 150, too many pupils are out of the instructor's line of vision, too many whose facial and bodily reactions he cannot read. In teaching the paragraph, the instructor must embrace and control the group. If more than 150 are present, they cannot feel the ardor of his embrace; if a group is too small—say 40 to 60—they would be embarrassed.

Thus, for inspirational or theater-type presentations, the group may be any size. For straight-line instruction, involving a variety of activities—testing, listening, watching, pausing to reflect, writing, responding, thinking about rhetorical questions, correcting self-tests, note taking—the group must be limited to a number that the instructor can dominate by his personality, or—what better describes the relationship—embrace.

6. *What is the relationship between large-group and small-group teachers?*

My own opinion is that an extremely close relationship, which makes of large-group and small-group teachers a kind of team working for a total objective of effective teaching, rather than directorship under the teacher-lecturer, is extremely important for the success of large-group instruction. In order to be effective, this team must do advance planning, follow up on results, and remain in constant communication. If the group is well organized and functions as a team, I believe that this cooperation can lead to new and exciting roles for both the small-group and the large-group teacher, as well as to definite improvement in curriculum. I hasten to add, however, that this kind of coordination takes the time and energy of teachers, and it is our experience that there are real difficulties in providing these essentials in the context of the traditional school program. Certainly, teachers cannot do the original and demanding professional work such a team concept implies unless they are relieved from routine, non-professional duties common in the school. We have been able to take only the first steps in developing this kind of team concept, but my feeling is that, by its further development, we shall gain the ultimate value from the procedures we have been using to explore the possibilities of re-deployment at the secondary-school level.

In closing these observations about experimental activities at Newton High School, and particularly about our school staff study, I should like to point to several matters which, in my judgment, are quite significant results of the experiences we have been through. Some of these matters are specific, definable, and accepted by most people in the school; other points are abstract, general, and controversial.

Specifically, we have found that the processes of selecting certain key areas of instruction for large-group work have resulted in the raising of all sorts of questions about what we teach and how we can best teach it. In a number of departments, the effect has been to give a major impetus to new and worth-while curriculum work on the part of teachers. Indeed, in the English department, a total re-examination of the curriculum has resulted. Also, the techniques developed for large-group instruction are beginning to move into the regular classroom. In four mathematics classrooms and one English classroom, projection facilities now are in use, with the result that "board work" is done more quickly and easily than by the traditional chalkdust routine. For driver education and mechanical drawing, similar projection material has been ordered. Moreover, we have learned from large-group instruction the specifications these projection methods require—from the kind of pencils to use to desirable building changes. For example, by the installation of folding doors, adequate space was provided for two classes at a time—eighty pupils—to receive personal typing instruction by projectors, freeing the teacher to assist individual students. My guess is that similar developments may occur in other subject fields as they become exposed to the type of questioning

which takes place as large-group instruction is developed. A natural step, then, from asking, "What shall we teach in large groups?" is to ask, "What shall we teach?" and "How best can we teach it?" It is my feeling that these last two questions are being asked more penetratingly and more purposefully in Newton High School as a result of Newton Plan procedures, and I regard this as a very healthy process, indeed.

Secondly, and with less assurance, I advance the proposition that all of our experimental procedures have shaken the school in a way which has been, on the whole, healthy. I say this with the full realization that the shaking has not always been comfortable, nor even friendly. New projects always are targets for negative comments. There have been some tense situations, and undoubtedly there will be more of these. At the same time, it is my feeling that, as a result of experimental procedures over the past four years, we have in Newton High School a faculty that is more ready for the revolutionary changes which will have to occur if secondary education is to answer its difficult problems in the years ahead. More than this, I believe that an increasing number of our faculty members are now ready to assume some leadership in change. At least a portion of our teachers have suffered the discomforts of climbing out of their familiar educational ruts and wandering for a while on the untried plains of experimentalism. That there have been discomforts involved, we cannot deny; just as we cannot deny that we have made mistakes—and even occasionally exaggerated our accomplishments. However, I am convinced that we are closer than we were some time ago to appreciating the fact that the frontiers of any enterprise constitute an exciting place in which to live and to work. It is my guess that those teachers who have had the opportunity at Newton High School to work on the frontiers of education in the past few years will continue to look for the stimulation of new experiences, and that—what has occurred already to some degree—their enthusiasms will progressively permeate the school.

Utah Staff Utilization Studies

MATTHEW F. NOALL

UTAH Staff Utilization Studies under the direction of the Utah Central Research Committee (by action of the Secondary-School Principals' Association) are now entering the third year of experimentation. Experiences of the first and second year have developed throughout the state both an understanding of and an enthusiasm for the values which the studies have demonstrated to be within reach of the secondary schools. In numerous instances teaching schedules, redeployment of teachers, and of pupils have been modified in accordance with the observed improvement of the educational program. Reorganization of teaching materials implemented by improved techniques of classroom instruction has made forward strides. University consultants to the various projects have contributed greatly both to the quality and to the extent of the forward look in secondary education.

During the school year 1957-58, three studies were conducted in Utah under the sponsorship of the National Commission on the Study of Utilization of Staff in the Secondary School and the Fund for the Advancement of Education. The three projects were:

1. A study of the teaching of physics in Utah high schools by means of a special set of Encyclopedia Britannica Films known as the *Harvey White Physics Films*. This study was completed in June 1958. A summary of the experiment was reported in THE BULLETIN of the NASSP for January 1959.

2. An investigation of the time of instructors and the resultant effect upon pupils in the seventh grade in the junior high school of Weber County was obtained by introducing the core curriculum. The project was continued through the school year 1958-59. It was also described briefly in THE BULLETIN in January 1959.

3. A utilization and evaluation study of junior high-school education. This project included a critique of junior high-school evaluative criteria already developed by a local committee appointed for that purpose. *The Evaluative Criteria for Junior High Schools* has been completed. The published document is available from the Utah State Department of Public Instruction.

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Five utilization studies were directed by the Utah Central Research Committee during the school year 1958-59. These studies were representative of various junior and senior high-school districts of the state. The studies were to determine:

1. The reactions of teachers and pupils to the introduction of the core curriculum in the seventh grade and the effect of this curriculum upon teacher utilization.

2. The possibilities of more effective use of teachers' time and of improved techniques of instruction in the language arts in grades ten, eleven, and twelve.

3. The effect of a different utilization of teacher time through the use of a teaching team in the subject areas of United States history and language arts in the eighth grade.

4. The effect of the utilization of teacher time in a teaching team which integrated the subject areas of United States history, language arts, and personal citizenship in the eighth grade. Also, an effort was made to determine whether the experimental utilization of teacher time was more efficient than the traditional arrangement.

5. The effectiveness of the use of a paraprofessional helper in the language arts program of the eleventh and twelfth grades of the senior high school.

These studies are being extended into the school year 1959-60. An additional project has been added to the list, a study of the preparation of occupational information and the utilization of teacher time in presenting the information to ninth-grade pupils.

The impact of the Utah Utilization Studies is being felt throughout the State. Additional experimental projects not sponsored by the National Commission but an outgrowth of the Utah studies have been introduced. One study which could greatly influence the future school building program in the state is an experimental study on the use of closed circuit T.V. in the instructional program of a large senior high school.

Core Curriculum at Weber County, Utah

MATTHEW F. NOALL
TARRAL H. BELL

THE SCHOOL year 1957-58 for the core study was one of in-service training and orientation of teachers. In order to evaluate effectively the differences between the various ways that teachers utilized their time in traditional classroom situations with those in which the core curriculum prevailed, it was necessary to make sure that the teacher staff of the core situation had been thoroughly trained and had all the concepts of core teaching. The conclusions of the first year's experimental study were summarized in the January 1959 BULLETIN, page 203.

During the second year of the study, the core teachers in the pilot schools used the resource units developed during the first year. They also taught their classroom groups in accordance with the plans formulated the previous year. Frequent meetings were held wherein teachers and administrators discussed some of the unique aspects of teacher time utilization in the core teaching situation.

Six elementary principals were trained in the use of special observation techniques which would measure the differentiation in the various classroom learning activities in the pilot schools. Following the training period, objective measurements of these differentiations were taken during a series of visits to the classes of each core teacher.

At the conclusion of the second experimental year, the core teachers from the various pilot schools met together in a final workshop. The resource units developed for use in a core program were revised and rewritten. Many parts of the units were improved after they had been used in actual classroom situations. These units were then printed and made available upon request for distribution to other junior high schools.

HYPOTHESES

The major hypothesis of this study is as follows. The time of teachers whose language art and social studies classes are organized in a core pattern and whose total time is scheduled for a planned sharing of materials, resources, and responsibilities among several teachers will be

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better utilized than the time of those teachers whose teaching programs are organized in the conventional, separate subject, independently scheduled manner.

In testing the validity of the major hypothesis stated above, the sub-hypotheses stated below were tested in an effort to prove the validity of the major hypothesis:

1. Pupils in junior high-school social studies and language arts classes organized in the core pattern of learning procedure receive more differentiation in their classroom learning activities and work assignments based upon an ability and interest basis, with more incidence of teacher assistance and leadership attention to varied ability and interest levels, than do pupils in conventional, non-core classes.

2. There is more evidence of existence of interaction and leadership experience in junior high-school language arts and social studies classes organized in the core pattern of teaching than exists in language arts and social studies classes in conventional, non-core classes.

3. There is more evidence of pupil initiative, control, and independent work and less evidence of teacher domination of learning experiences in junior high-school language arts and social studies classes organized in a core pattern of teaching than exists in junior high-school language arts and social studies classes organized in the conventional, non-core mode of operation.

4. Junior high-school pupils in core classes achieve academically at a satisfactory rate of speed.

5. Junior high-school pupils in core classes relate themselves effectively with their peers and there is evidence of a decrease in the number of social isolates in junior high-school core classes as compared with non-core classes.

6. The personal and school problems of junior high-school pupils in core classes receive attention which results in their resolution and there is evidence of fewer school connected problems of pupils in core classes as compared with pupils in non-core classes.

CLASSROOM ORGANIZATION AND TEACHING SCHEDULES

Core classes were scheduled in two consecutive periods so that each teacher had a long block of time within which he developed core learning experiences. In addition, two or more teachers were scheduled with planning periods (free from teaching responsibilities) at the same time each day so that a sharing of materials, resources, and responsibilities among several core teachers could occur. Librarians and counselors in the pilot schools were also available for special assistance during these daily planning sessions.

ACCUMULATION OF DATA PERTINENT TO THE STUDY

The following specific research activities were completed during the second year of the project:

1. *Classroom Observation Measurements*

The six trained elementary-school principals in the classroom visitations used the observation schedule, "An Exploratory Measurement of In-

dividualities of Schools and Classrooms," by Cornell, Lindvall, and Saupe; University of Illinois Bulletin, Volume 50, Number 75; June 1953, Urbana, Illinois. Through the use of the instrument, the trained observers recorded the extent of differentiation in classroom learning activities and work assignments based upon individual abilities and needs in the seventh-grade social studies and language arts classes scheduled within the framework of the core. This observation instrument also served as a means to measure pupil interaction and social organization in all core classes. Pupil initiative, pupil control, and extent of teacher domination of classes in the core groups were measured by the trained observers through the use of the classroom observation instrument.

2. *Measurements of Academic Achievement*

The California Achievement tests were administered to all seventh-grade pupils during the academic year 1957-58. These tests were administered again at the conclusion of the 1958-59 school year. Results were compared with national norms and with local scores recorded from the 1957-58 testing program.

3. *Sociometric Measurements*

Sociograms were taken and sociometric scores were computed for seventh-grade pupils during the 1957-58 and 1958-59 school years. Information concerning the number of social isolates in the 1958-59 core classes were compared with results of sociometric data for the 1957-58 year.

4. *Problem Check-List Measurements*

The *Mooney Problem Check List* was administered to all seventh-grade pupils in the pilot junior high schools during the 1957-58 academic year when the core program was not in operation. This same check list was administered at the conclusion of the 1958-59 school year.

ACHIEVEMENT TEST RESULTS

Form W of the *California Achievement Test* was administered to 694 seventh-grade pupils who received instruction in a non-core teaching situation during the academic year 1957-58. This same test was again given to 768 seventh-grade pupils who received instruction in the core program during the year 1958-59. The following table gives the results, expressed in Grade Norms, of this achievement testing and compares the achievement under the core program with the achievement attained the previous year:

Year	25%ile	Median	75%ile	90%ile	Mean
1957-58	6.3	7.1	8.3	9.1	7.2
1958-59	6.3	7.5	8.7	9.7	7.5
Gain	0	.4	.4	.6	.3

The data above would appear to validate sub-hypothesis number four of this report. In fact, there is a surprisingly significant gain in achievement favoring the 1958-59 seventh-grade core classes as compared to the 1957-58 non-core classes.

SOCIOMETRIC MEASUREMENTS

Since it is recognized by most educators that pupils should be able to relate themselves effectively with their peers and that social acceptance in a group is an important goal for an individual pupil, an attempt was made to obtain sociograms on all pupils and individual sociometric scorers. (A sample of the sociogram used may be found in *THE BULLETIN* of the NASSP for January 1959, page 199.)

The sociometric scores were computed on all pupils in all classroom groups during the first year when core classes were not in operation and during the second year at the conclusion of one year in the core program. Pupils who received a sociometric rank of five or less were arbitrarily regarded as "social isolates" for purposes of comparison in the study. Following is a comparison of these sociometric measurements for the two years:

<i>Year</i>	<i>Total Number of Pupils</i>	<i>Number of Social Isolates</i>	<i>Percentage of Total Seventh- Grade Group Who Were Social Isolates</i>
1957-58	694	101	14.5
1958-59	749	99	13.2
			Decrease: 1.3

The small decrease in the percentage of the total number of pupils found to be social isolates in the seventh-grade core groups of 1958-59 as compared to the non-core groups of 1957-58 appears to be insignificant. The research therefore apparently failed to validate hypotheses number five, as stated in this report.

PUPIL PROBLEM INVENTORIES

The extent to which the core program made it possible for teachers to help pupils in solving some of their problems was measured through use of the *Mooney Problem Check List*. The check list was administered at the end of the year 1957-58 and again at the end of the first year in the core program in 1958-59. The aggregate number of times that pupils checked items listed as sources of worry or difficulty during the two comparative years was as follows:

<i>Year</i>	<i>Number of Pupils</i>	<i>Aggregate Number of Items Checked</i>	<i>Average Problem Checks per Pupil</i>
1957-58.....	678	19,604	28.9
1958-59.....	728	15,840	21.8
			Decrease: 7.1

The aggregate number of times that school connected problems were checked each year was as follows:

<i>Year</i>	<i>Number of Pupils</i>	<i>Aggregate Number of School Connected Items Checked</i>	<i>Average Per Pupil</i>
1957-58.....	678	5,223	7.7
1958-59.....	728	3,698	5.1
			Decrease: 2.6

The data presented from the *Mooney Problem Check List* indicate figures of significant difference in favor of the 1958-59 seventh-grade core groups as compared to the 1957-58 seventh-grade non-core groups. These differences, although not spectacularly significant, would appear to substantiate hypothesis six of this report.

REPORT OF THE CLASSROOM OBSERVATIONS

The observers were given a period of training extending over six weeks, during which the standard training techniques, as described by Festinger and Katz,¹ for example, were employed. Training was considered adequate when inter-observer reliability reached a sustained level of over 80 per cent agreement in final trial runs. As the observers moved into the actual observation schedule, it was presumed that this level would go even higher because of the objective nature of the process.

Neither the teachers nor the principals of the schools involved were aware ahead of time as to when the observers would arrive. Every effort was made to preserve the normality of conditions. Observers did not interrupt or become involved in class activities and teachers were urged prior to the project to continue regular procedure at all times. They were assured that they would not be personally identified in the report of the data.

It would appear that hypothesis number one, as referred to previously, is supported by the data from the observations. That is, it does appear that pupils in the core classes received more differentiation in their learn-

¹ Festinger and Katz. *Research Methods in the Behavioral Sciences*. New York: The Dryden Press, 1953. See pp. 381 ff., and 463 ff.

ing activities, and, conversely, less identical work. Pupils in core classes received more teacher assistance than those in non-core classes, though the difference is so small it cannot be considered significant.

Observation of social organization revealed that the total group of core classes did not differ greatly from the non-core classes. But what differences there were appeared somewhat contradictory. It appears that the non-core classes provided slightly greater opportunities for pupil leadership while the core classes provided somewhat greater opportunities for pupil-pupil interaction.

Observations also appeared to show that pupils in the core classes had somewhat greater opportunities to use their own initiative and direction in the learning process. Less of their activity provided no pupil participation, and more of it provided greater major pupil participation than in the non-core classes.

CONCLUSIONS

The total picture revealed in the foregoing tables indicates that there were certain significant differences between core and non-core class operations in Weber School District during 1958-59, in terms of the hypotheses of this study. Although the gross distributions of classifications of the observation intervals for core and non-core classes tended to parallel each other, there were enough differences of direction and magnitude, particularly the latter, to support the hypotheses to the extent claimed above. Since for all of the core teachers this was their first full year of operation under this organization, and for most it was an approach to teaching in which their first training was undertaken during 1957-58, it could well be hypothesized that during 1959-60, and the years following, the types of differences would increase.

It is clearly revealed that certain select variables have a very powerful effect on items such as those measured in this study. Each time a selected group of classes were deleted from the tabulations, the magnitude of differences increased appreciably. It is a striking revelation that the four teachers who handled both core and non-core classes in this study seemed to function much more like the non-core teachers than like the core teachers, and inclusion of their classes in the tabulations usually weighted the results against the hypotheses.

For the future it would seem valuable to continue studies of this type in an attempt to discriminate more and more sharply among the varieties of teaching and learning activities which actually go on in our public school classrooms, and, particularly, to continue relating concepts of more effective utilization of teacher time to such functional variables.

The major hypothesis of this project was the focal point of the entire efforts of all who participated in the program over the past two years. The validity of this major hypothesis was demonstrated in the majority of cases where it was tested under the sub-hypotheses referred to in the previous section on research findings. (As indicated in the Research

Findings of this report, some sub-hypotheses were not validated by the data.) Those who worked closely with the program and who have had years of experience in secondary-school classrooms as teachers and administrators agreed that both the research findings and impressions gained from actual observation of teaching indicated that the time of teachers was more advantageously utilized under the core program than it was in non-core teaching circumstances.

The experiences from this study will reach out into other districts in this area. The resource units, developed in close correlation with Utah study guides, may be used by many junior high schools with resultant benefit in correlating subject matter.

Teaching in the junior high school of the Weber School District has been definitely improved as a result of this two-year core curriculum project. Core teaching has become a reality in this school district as a result of this project. The influence of the project will last for years with educational benefits to several thousand junior high-school youth.



This English class of 180 students meets every Monday for a lesson designed to introduce, explain, and motivate. Attendance is taken by the clerk in the projection room. A requisite of this program is the development of effective note-taking and outlining techniques. The public address system and the overhead projector are integral parts of many lectures.

Staff Utilization Through Language Arts Reorganization, Hurricane, Utah

MATTHEW F. NOALL
MAURICE NUTTALL

THE PURPOSE of the Hurricane Project was to study the possibilities of more effective use of teacher time and talent in teaching language arts in grades ten, eleven, and twelve of the Hurricane High School. Specifically, the study attempted better to utilize the time and talents of teachers:

1. By scheduling language arts classes to provide for flexible grouping of students so that classes may be combined or broken into smaller units as seemed best for different activities.
2. By grouping students more homogeneously so that instruction could be geared more closely to students' needs and abilities.
3. By stimulating teachers to improve their instructional procedures and techniques.

PROCEDURE

Prior to the opening of school, a two-week workshop was held with the personnel in the project and the University consultant. They also met about once a month during the 1958-59 school year. In June 1959, they met in a three-day workshop session to summarize the year's work. At the opening workshop, teachers became familiar with the purposes of the study, the organization of subject matter to be taught, and the method of classifying pupils for assignments to various class groups based upon the needs of each particular pupil.

The following formula was worked out to group Hurricane High-School pupils according to ability in language arts classes for the school year 1958-59. Each student was classified according to the formula that had been worked out.

After each pupil's total score had been computed according to the above formula, the students were distributed in English classes as follows:

1. The 36 students with lowest total scores were divided between the two sections called groups 1 and 2.

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Formula for Classifying Pupils—September 1958

$$\frac{I.Q.}{10} + \left\{ \begin{array}{l} \text{Language grade} \\ \text{placement on} \\ \text{California} \\ \text{Achievement Test} \end{array} \right\} + \left\{ \begin{array}{l} \text{Reading grade} \\ \text{placement on} \\ \text{California} \\ \text{Achievement Test} \end{array} \right\} + \left\{ \begin{array}{l} \text{Last year's} \\ \text{English} \\ \text{grade} \end{array} \right\} = \left\{ \begin{array}{l} \text{Total} \\ \text{Score} \end{array} \right\}$$

A = 10; B = 8; C = 6; and D = 4.

Examples:

$$11.0 + 9.8 + 8.7 + 6 = 35.5$$

$$8.5 + 10.3 + 10.7 + 8 = 37.5$$

$$11.0 + 11.3 + 10.9 + 10 = 43.2$$

$$12.0 + 11.1 + 11.5 + 8 = 38.6$$

Distribution of Grades in Various Sections

Teacher	Grade			Total
	10	11	12	
A.....	6	8	2	16
B.....	6	8	2	16
C.....	16	12	10	38
D.....	15	15	8	38
E.....	0	9	11	20
F.....	18	9	14	41

2. The next 35 students, those whose total scores according to the formula ranked from the 37th to the 71st percentile, were also divided equally into groups 3 and 4.

3. The remaining students, approximately 105, whose total scores were highest according to the formula, were given four choices. They could register for (1) Language Arts, Group 3, (2) Language Arts, Group 4, (3) a class which emphasized journalism—Language Arts Group 5, or (4) a class which emphasized speech—Language Arts, Group 6.

The above schedule enabled Groups 1 and 2 to combine their slow students during the first period for special activities, audio-visual aids, or to regroup them for sociometric or other needs. Since both Group 3 and Group 4 were taught third period, students in these sections could also be combined or regrouped for special purposes and needs. During the third period, when Groups 3 and 4 were taught, both Teacher C and Teacher D, the other two language arts teachers, were free so that they could (1) plan together, (2) help Groups 1 and 2 with their classes, or (3) take part of the students from Groups 3 and 4 for special remedial or enrichment activities.

During the sixth period, Teacher C and Teacher D taught approximately sixty-five of the more accelerated students. During this period both Teacher A and Teacher B were free so that they could (1) plan together, (2) be called in to help Groups 5 and 6, or (3) take part of the students from Groups 5 and 6 for special remedial or enrichment activities.

Allocated Subject Matter and Planned Rotation of Teachers

A general outline was drawn up indicating what subject matter should be taught during the year and how teachers should rotate in teaching the four language arts classes. Since the school year at Hurricane High School is divided into four periods of approximately nine weeks each, the new program was divided into four nine-week blocks to correspond to this already established pattern.

Groups 1 and 2, the thirty-two students whose mean scores were the lowest, had, during the year, two blocks of work with Teacher A and two blocks of work with Teacher B. Teacher A emphasized composition, grammar, and usage; Teacher B emphasized literature. Since both Groups 1 and 2 were taught at the same period, these groups rotated back and forth between these two teachers every nine weeks.

Moreover, such a specialization of activities seemed to fit in with the talents and desires of these particular teachers. Under this plan, the teachers used the materials they had prepared with two different groups; this saved them preparation time. Moreover, they were always teaching in the area of their greatest interest and should, therefore, have been able to use their talents to advantage.

For the other four groups, Language Arts Groups 3, 4, 5, and 6, a schedule involving teacher rotation was worked out. Since the schedule for Groups 3, 4, 5, and 6 was somewhat complicated, it seems advisable to present it block by block.

First Block—Nine Weeks

<i>Language Arts</i>	<i>Emphasis</i>	<i>Teacher</i>
Group 3	Composition Grammar Usage	A
Group 4	Literature	B
Group 5	Journalism	C
Group 6	Speech	D

Second Block—Nine Weeks. This block was divided into three three-week periods. Each teacher prepared one short unit and presented this unit to the three groups which the teacher had not met during the first nine weeks. The emphases during these three-week blocks were as follows:

Punctuation	Teacher A
Literature	Teacher B
Composition	Teacher C
Organization of ideas and materials	Teacher D

These emphases corresponded to the teachers' strengths, and at least two of the areas were those in which standardized tests had shown students to be generally weak.



Pupils from the speech class at the Hurricane (Utah) High School have experience talking to various class and civic groups.

Third Block—Ten Weeks. The ten-week period from January 9 to March 27 was set up to give students who wished to do so an opportunity to participate in speech contest work or to participate on school debating teams. Since Hurricane High School had for many years been active in speech activities, many students were anxious to have such opportunities.

During this third block, Teachers A and B exchanged classes. One taught composition, grammar, and usage to Group 4 and the other taught literature to Group 3. This exchange saved teacher preparation since Teacher A used with Group 4 the units she had used with Group 1 during the first block of time. Similarly, Teacher B used with Group 3 the units he had used with Group 4 during the first time block.

During this same third period, Teacher D, the debate and dramatic coach, taught a special speech class during the same hour that Language Arts Groups 3 and 4 met. This enabled students in these groups who were interested in speech contest or debate work to transfer to Teacher D's class and receive special training in speech contest work. Students in Group 5 who were interested in speech contest or debate work were permitted during the third block to transfer from Teacher C's class to the speech class. These shifts enabled Teacher D to contact during regular school periods, from January 19 to March 27, all students interested in debate and speech contest work.

Fourth Block—Nine Weeks. This last block was divided into two parts, a six-week period and a three-week period. During the first six-week period, Teacher A conducted a special review in composition, grammar, usage during the third and sixth periods. During these hours all seniors who desired were excused from their regular sections to meet with Teacher A. Teacher C taught a special class third period for the sophomores and juniors in Group 3. All other sophomores and juniors, plus seniors not desiring the review, met in the same groups under the same teachers as during the first nine-week block.

For the last three weeks of the fourth block, all students went back to the group and teacher with whom they started in the fall. This teacher repeated to this group the short unit he taught to the other groups during the second block. This again saved teacher time and talent, since such units had presumably been allocated according to teachers' strengths, and since teachers already had these units worked out.

HYPOTHESES

It was hypothesized that:

1. There will be greater academic progress on the part of the pupils under the proposed flexible and homogeneous grouping.

2. There will be greater utilization of teacher time and talents as well as of school facilities.

3. There will be a favorable impact upon the attitudes of both pupils and faculty.

4. There will be a greater parent awareness and appreciation of the general school effort.

TESTS AND EVALUATIONS

Achievement test batteries were administered at the beginning and a different form of the same test at the end of the study. In all cases, with the exception of three students whose I. Q.'s ranged from 70-79, scaled scores were higher on Form Z of the Cooperative English Test given in May than on Form Y of the *Cooperative English Test* given in September. The average growth in different areas ranged from .1 point to 7 points. However, these figures offer little real support for the new program since there are no figures to show how much average growth in scaled scores on the *Cooperative English* tests Hurricane High-School students made under the old system of teaching. Moreover, even though the scaled scores consistently showed growth, when the difference in scaled scores is compared to the probable error, the difference is not sufficient in many cases to be statistically significant.

The committee compared the growth made by the tenth-grade students at Woodward Junior High School and the eleventh- and twelfth-grade students at Dixie High School in St. George with the growth made by the students in Hurricane. However, it should be pointed out that the groups at the Woodward and Dixie High Schools cannot be considered a valid control group because of the many variable factors beyond the control of the experiment. Certain conditions in the Woodward and Dixie schools are so different that differences in growth as indicated by scores on *Cooperative English* tests cannot logically be attributed to Hurricane's new language arts program. In Dixie High School, English classes range in size from seventeen to twenty-four students as compared with approximately thirty-six in all English classes at Hurricane, with the exception of Groups I and II. Moreover, at Dixie High School senior students are not required to take English. For example, in 1958-59 only forty of Dixie's seniors were enrolled in English classes. For the most part these forty were students who liked English and had received high grades. Only one of the forty had an I.Q. below 90. Furthermore, these forty twelfth-grade pupils were taught in two classes of twenty students each as compared to classes of approximately thirty-six at Hurricane. Finally, in the Woodward and Dixie Schools, all tenth- and eleventh-grade students and all twelfth-grade students who took English concentrated on composition, grammar, usage, and literature—the specific things measured by the *Cooperative English* test. Whereas in Hurricane High School, superior students from all three grade levels spent considerable time in speech activities developing skills not measured by *Cooperative English* tests. Therefore, comparisons between the scores or gains made by the two groups on the *Cooperative English* tests must

consider also the differences mentioned above in class size, composition, and areas of study.

It was encouraging to find that in all schools all groups of students made some growth in all areas measured by the *Cooperative English* tests. However, generally speaking, students with lower I. Q.'s seemed to make greater growth in the Woodward and Dixie schools. These findings made the committee wonder whether brighter students were being sufficiently challenged by the Hurricane programs. This is one of the areas to which considerable attention will be given in the 1959 fall workshop.

Comparisons further point to the fact that Hurricane High-School students seemed to make consistently less growth in effectiveness of expression as measured by increases in scaled scores on the *Cooperative English* tests than did students at the Woodward and Dixie schools. Consequently, methods for helping students to become more effective in expression is another area which will receive attention in the 1959 fall workshop.

SUMMARY OF ACADEMIC ACHIEVEMENT

A series of academic tests were given to the pupils in the English classes of the Hurricane High School at the beginning and end of the school year in order to determine the gain by pupils in the principal categories of the English program. The observed gain scores indicated that the pupils in the experimental program made satisfactory growth under the flexible homogeneous grouping of pupils as used in the experiment. The scheduling of two sections of a group classification at the same period permitted combining sections for audio-visual and special lessons.

The consultation and preparation period for teachers arranged at a time when additional English classes were in session permitted an exchange of teachers for special subject matter preparation. The rotation of teachers from group to group provided opportunities for a greater utilization of teacher time and competencies. The observed gain scores yield positive evidence in support of hypotheses one and two as stated in this report.

SIGNIFICANT REACTIONS AND OPINIONS OF PARTICIPANTS

Attitudinal Questionnaire

An attitude rating scale was given in September 1958, and again in the spring of 1959 to assess pupil, teacher, and parent attitudes toward the program at its beginning, and any changes in attitude toward the program after its first year in operation. The data obtained give evidence that the preponderance of opinion was in favor of the experimental re-classification English program as it was being conducted.

While there was some change of opinion during the year, it was not significant. The principal change was toward a mild disapproval or a

neutral or suspended judgment attitude rather than toward a certain disapproval of the program.

The structured personal interviews which were held with each group supports the general conclusions. The general findings on the attitudinal questionnaire provide data in support of hypotheses three and four of this report.

CONCLUSIONS

Results of the *Cooperative English Tests* administered to the pupils of the Hurricane High School show that all groups of pupils in the reclassification program made some gains in all areas. It is not possible to determine from the data presented whether the gains were due to the experimental reorganization of the English program, from the greater effort and enthusiasm on the part of the teachers, or from the consultant help furnished to the new program by the University consultant.

The new program utilized teachers' time and talents to better advantage because, in most cases, teachers have been able to use the units they would have used and worked out and the material they prepared with several different groups of students. Furthermore, the new program enabled each teacher to spend the major part of his time working in the area of his greatest strength.

Though there may have been slight dissatisfaction with some aspects of the program, attitudinal questionnaires and feeling surveys indicate that students, parents, and teachers preponderantly favor it, and want to see it continued.

The program is based upon a three-year experiment in order to develop the new three-year sequence of lesson outlines necessary for pupils entering the tenth grade in the school year 1958-59. The tentative statements in this report are based upon the first year of the "proposed three-year program." Some of the proposals for the improvement of the second year are: (1) increase the length of the exchange teaching blocks to at least six weeks, (2) collect more objective data upon which to base help to individual pupils with their writing and to judge growth in composition; and (3) develop means to stimulate and promote growth among the brighter students. The desire for further curriculum research seems to have received a great impetus not only among the teachers in the experimental program, but also throughout the entire Hurricane High-School faculty.

Team Teaching at Roosevelt Junior High School, Duchesne County, Utah

MATTHEW F. NOALL
LAWRELL JENSEN

AN EXPERIMENT on the better utilization of time and competencies of teachers through team teaching was conducted in the Roosevelt Junior High School in the Duchesne School District during the school year 1958-59. The experiment reported herein was undertaken to reveal: (1) ways of meeting teacher shortage through the better utilization of time and energies of the present staff and students; (2) changes in the curriculum design of teaching; and (3) reorganization of administrative patterns.

Specifically, the problems in this experiment were designed to determine whether the teaching-team approach to instruction and a reorganization of the schedule permitting the grouping of pupils of the eighth grade in classes of variable sizes and abilities for instructional purposes would: (1) better meet the needs of pupils; (2) more effectively utilize the time and competencies of teachers; and (3) provide for the use of improved instructional materials and equipment.

PROCEDURE

For the purposes of this experimental study, the eighth-grade class was scheduled for one two-hour block of time for English, United States History, and Personal Citizenship. A team of four teachers with training and experience in the various subject areas was appointed to participate in the experiment. The principal and librarian also met with the teaching team in a daily planning session. These four teachers were assigned to the project for three periods of the school day. One period was used as a group planning and preparation period. Through a redeployment of teachers and a versatile grouping of pupils based upon needs, interests, and abilities, the particular competencies of the teachers were made available to a larger number of pupils, and thus the better utilization of teacher time was made possible. The classroom schedule was arranged as shown on the next page.

Matthew F. Noall is Executive Secretary of the Utah Central Research Committee and Lawrell Jensen is Principal of Roosevelt Junior High School, Roosevelt, Utah.

Period	Organization of Pupils				
	M	T	W	Th	F
1	Conference of four teachers				
2					
3					

This pattern was modified and changed as it was ascertained to be instructionally advisable. According to pre-arrangement by members of the teaching team, the entire class met as a single group in the auditorium.

The teacher responsible for presenting the lesson to the combined groups utilized a variety of instructional techniques devised in cooperation with the University consultant. Particular emphasis was given to such media as moving pictures, slides, radio broadcasts, tape recordings, television, overhead projectors, pictures, charts, mock-ups, and to the use of laboratories, workshops, libraries, and community resources. The flexible grouping stressed the needs, interests, and achievements of the average pupil, while special attention was also given to the gifted and to the retarded pupil. In the small groups, individual needs were met through individual instruction and extended library and project assignments.

The pre-school workshop prepared the instructors for the content of the courses to be taught and offered a limited preparation of teaching in regard to these units. This portion of the workshop also conditioned the teaching team to the process of working together as a cooperative group rather than working as individuals. The group planned the general class and teaching procedures to include (1) presentation of material on the part of the instructor, and (2) the give and take of open discussion. The initial units were prepared through the cooperative efforts of the teachers involved in the experiment. All units which were developed in the workshop were written up later according to a standard format which had been previously agreed upon in cooperation with the project consultant. Appropriate audio-visual materials were previewed and selected. The consultant was especially helpful in giving directions to the workshop.

A unique feature of the experiment proved to be the very high degree of cooperation among the members of the teaching team. The teacher time saved by large group instruction was utilized for the preparation of assignments which involved special teacher competencies.

HYPOTHESES

The following hypotheses were proposed:

The revised school schedule which will offer a two-period block of time and a common consultation and activity period will provide:

1. Greater utilization of teacher time and additional periods for the preparation of special services.
2. Greater utilization of teacher competencies, thus permitting teachers to present their major skills to more pupils.
3. Better instruction because of greater interest and additional time for preparation.
4. The accelerated and retarded pupils tend to make greater advancement as a result of the individual help given to them from teachers through the division of the class into smaller, somewhat homogeneous groups.
5. The middle 50 per cent of the class will make equally as much progress as pupils in the traditional organization.

The above schedule will also provide:

6. An enlarged and more skillful use of instructional material and equipment as the result of increased teacher incentive and time for preparation.
7. The reorganization of the class schedule and the use of a teaching team will not adversely affect the social interaction of pupils.
8. The members of the teaching team will prefer this approach to teaching to the traditional method of one teacher for one class.

TESTING PROCEDURE

To make available comparative data, the eighth-grade students in the Duchesne and the Altamont High Schools were used as control groups. Both schools are in the Duchesne County School District. All existing test data concerning the eighth-grade students of the district were compiled at the beginning of the project. This consisted of scores obtained from the administration of: (1) *Otis Quick Scoring Mental Abilities Test*, 1956; and (2) *S. R. A. Achievement Series*, 1957.

Comparison of achievement gains in the academic subjects of the experimental and control classes were made from the matched groups. Included in the test, were the following:

1. Testing for the gain in subject matter of language arts and history was measured with tests given at the beginning and end of the project. These tests were the *California Achievement Test Battery* and the comprehensive end-of-year test to accompany the textbook *This Is America's Story*, by the Houghton Mifflin Company.
2. The reaction of members of the teaching team and pupils and the community was determined through structured interviews and attitude scales administered by the Central Committee.
3. Sociograms were used to determine social interactions within the experimental groups.
4. Use of teacher time was measured by a day-book record of teacher duties.

5. Use of teacher competencies was determined from a record of special duties and assignments kept by the principal and teachers.

The testing procedure was supplemented by the following records which were kept:

1. *The Daily Log.* This is a record of time spent by team members in the various activities related to the teaching project. It also outlines the distribution of time between large and small group instruction. The log contains a daily evaluation of the degree of success obtained by the use of the lesson outlines.

2. *The Daily Time Table.* This is a record prepared in advance of the allocation of teaching responsibilities of team members. Specific time allotments for the various sections of the work and subject matter references are included.

3. *The Teaching Units.* Teaching units for the subject matter of the experiment were developed cooperatively by the team. The university consultant, who provided the format for the units, criticized and evaluated each unit before it was used in the classroom. Many teaching aids were prepared in connection with the units. These included maps, cell overlays for the overhead projector, bulletin board materials, film previews, pictures for the opaque projector, and charts and graphs.

The three sets of data furnished an excellent basis for the evaluation of the program. They have also laid an excellent foundation upon which to build an improved classroom program for succeeding years.

For purposes of comparison, pupils were divided into groups A, B, C, and D based upon mean I. Q. Group A had a mean I. Q. of 100.26, Group B of 102.07, Group C of 82.81, and Group D of 69.8. There was great variability in the mean I. Q. between the experimental and control groups; therefore, matched groups based upon mean I. Q. were selected from the control schools. For purposes of comparison, the corresponding mean I. Q.'s for the matched control groups were: Group A, 101.72; Group B, 101.72; Group C, 83.79, Group D, 71.38.

SUMMARY OF ACADEMIC ACHIEVEMENT TESTS

1. The combined experimental group achieved higher mean gain scores in the areas of history and total language, but there was no significant difference between the two groups in terms of mean gain scores in reading.
2. Several points are worthy of mention with respect to the matched sub-groups. Of the accelerated groups, the two experimental groups achieved higher mean gains in history. In addition, experimental Group B achieved a higher gain than did control Group B in the area of reading. Experimental Group C achieved significantly higher mean gain scores in both language and history. The two retarded groups, experimental and control D, showed results somewhat in reverse to the general trend. The control group achieved a larger

mean gain in reading. The same trend was also noted in history, but the t-ratio did not quite reach the .05 level of confidence.

3. The results throughout indicated that there was a significant correlation between I. Q. scores and gain scores, thus necessitating the need for matching the sub-groups according to I. Q. mean scores.
4. A breakdown of the *California Language Test* indicated that the spelling section received the least amount of gain; and in the *California Reading Test*, greater gains were made in reading comprehension than in vocabulary.
5. Finally, taking into consideration the limitations of the study, the general trend appears to favor the experimental group in the amount of mean gain made on the achievement tests. When the combined experimental and control groups were compared, the experimental group achieved the greatest mean gains in history and language. Although there was no difference between the groups in reading, the control group at least did not surpass the experimental group in this area. There is still the problem, however, as to what portion of the gain should be attributed to teaching procedure and how much should be credited to added motivation and effort on the part of the teaching team.

SUMMARY OF SOCIOMETRIC DEVICE TEST

1. Although there appeared to be more gains than losses on the *Sociometric Device*, the differences between pre-test and post-test means were not statistically significant. There was no significant difference in mean gain scores between the combined experimental and control groups on the *Sociometric Device*. The short length of time between the administration of pre-test and post-test very likely was a major limiting factor.
2. Data taken from the *Sociometric Device* administered to the eighth grade of the Roosevelt Junior High School yields information that is significant to the classroom teachers who desire to improve the social adjustment of pupils. It has served to make the teachers conscious of problems involved in pupil relationships and factors that are concerned with the success of the pupil during his school life. Such situations are too often passed with but little notice.
3. The data also tend to support the conclusion that without some comparable information, teacher judgment may fail to be centered consciously upon problems of human relationships in the classroom. With the data available, teacher effort is supported by specific information. Teachers who work to help pupils build a better foundation for adjustment to the problems of life need the factual information relative to a pupil's feelings of belonging or of not belonging to the class group-life. Anti-social attitudes in a

pupil's life form real obstacles to establishing habits of good citizenship.

4. The data justify certain tentative statements considered pertinent to the teaching situation in the eighth grade:
 - (a) The identification of pupils who have few friends and who dislike those with whom they associate is necessary to an effective guidance program.
 - (b) Identification of the pupils who are the favorites of classmates also supplies constructive information.
 - (c) Through class management and counseling, much can be done to improve an unfavorable situation which otherwise might perpetuate itself with increasing intensity.

UTILIZATION OF TEACHER TIME

Chart Number 1 shows how teacher time was utilized during the study. The basis of the chart is the teaching period. The teaching period is defined as a fifty-five minute period spent by a teacher instructing a conventional class. The study included a total of 1,416 teaching periods (the number of teaching periods multiplied by the number of days in the school year). Following are some general statements concerning teacher time and competencies:

1. At the end of the first project year, the team members of the Roosevelt Junior High School prefer the team techniques to the traditional organization. The main reason for this opinion was the superior preparation made possible through group planning and utilization of the collective time and talents of the team.

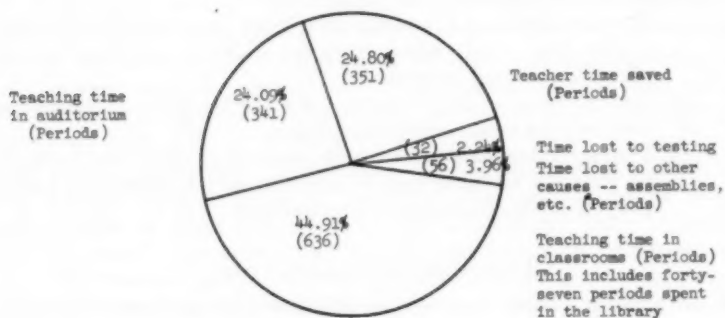
2. Chart I shows 24.8 per cent of teacher time saved. While this time was made available for a better job of preparation, the demands of the first project year were so great that many additional hours were spent in preparing the instructional units. The mass teaching techniques appear to have unusual possibilities wherever large groups are taught. Chart I shows 24.09 per cent of the teaching time spent in large group instruction. Areas exist in almost every subject matter field that can be effectively instructed in large groups. However, nearly every subject field requires teachers to give students individual attention. The team teaching technique, as employed in this study, seems to be an ideal way to use large group instruction for economy of time and materials, yet at the same time to meet the individual instructional needs of pupils.

3. Discipline was not a problem during the large group instruction. More students in the eighth grade obtained positions on the honor roll than in either the seventh or ninth grades.

4. Students in the eighth grade had a noticeably better attendance than those in the seventh or ninth grades. (7th grade, 72.71%; 8th grade, 93.21%; 9th grade, 91.99%.)

CHART NUMBER 1

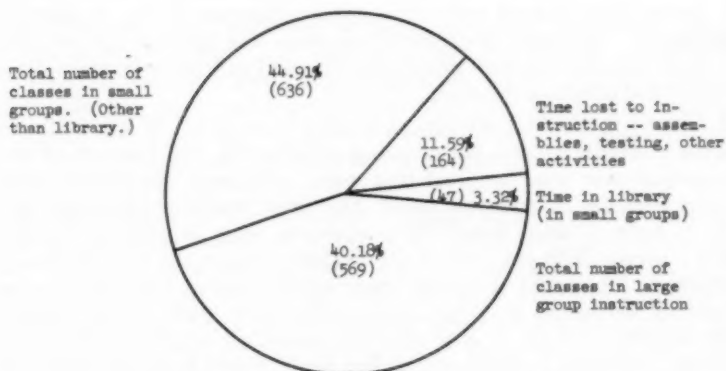
Distribution of Teacher Time During Experiment



Figures in parenthesis indicate teaching periods

CHART NUMBER 2

Distribution of Student Time During Experiment



Figures in parenthesis indicate the teaching periods

EVALUATION OF TEACHING TEAM PROJECT BY PUPILS, PARENTS, AND TEACHERS

An attitudinal questionnaire and structured interviews were administered to the pupils, teachers, and parents in October 1958 to determine the attitude of the various groups toward the experimental program. The same form was administered again in May 1959 to determine changes, if any, in attitude toward the program after its first year in operation. The questionnaire and interview questions were prepared and administered by the Utah Central Research Committee. The questionnaire consisted of twenty questions.

Responses to the attitudinal questionnaire of pupils, parents, and teachers reveal a high degree of interest and support of the experimental program of the teaching team as conducted at the Roosevelt Junior High School. Structured interviews with teachers not in the program indicated a desire to know more of the daily plans of the team teachers. There was strong support of the idea that the program should continue, also that there should be more faculty discussion of problems so that team members could not become a special clique that seemed to be favored by the school. Teachers were enthusiastic in support of the idea that through team-teaching, as modified by the teaching schedule, greater utilization of teacher time and competencies, and an improved educational program can be accomplished.

CONCLUSIONS

The experiment in the utilization of teacher time through the use of a teaching team in the Roosevelt Junior High School in the Duchesne County School District gave positive results in favor of the educational achievements of pupils when compared with control schools which were taught according to the traditional method.

A revision of the class schedule pattern in the school permitted a team teaching approach in instruction, a re-deployment of teachers for large and small group instruction, the grouping of pupils in classes of variable sizes and abilities for instructional purposes, and an efficient method of meeting the needs of pupils.

The organizational pattern provided a more effective utilization of time and of the competencies of teachers. It also helped the teachers in the use of improved instructional materials and equipment.

An analysis of pupil social attitudes and social interaction within the school group through the administration of a *Sociometric Device* provided teachers with helpful information in improving the guidance services to class members.

At the conclusion of the first experimental year, the school superintendent, principal, and members of the teaching team endorsed the teaching team possibilities for their own school district. They expressed the desire to continue the experiment another year, and, if possible, to try it out in additional grades, subject areas, and schools.

Team Teaching at the Wahlquist Junior High School, Weber County, Utah

MATTHEW F. NOALL
GALE ROSE

AN EXPERIMENT in the values of team-teaching as compared with traditional classroom practice was conducted in the Wahlquist Junior High School in Weber County during the school year 1958-59. The eighth-grade class consisting of 225 pupils was organized into two sections. Each section met daily in a large group followed by variable sized sections for smaller group instruction. The subject areas of United States History, Language Arts, and Pupil Guidance were integrated into a series of resource units prepared by the teaching team during the common preparation period.

This report presents preliminary findings and tentative conclusions resulting from the first year of work in the project, particularly as they relate to the hypothesis proposed for the experiment. The second year of the project will involve a continuation, refinement, and further development along the lines established during 1958-59.

HYPOTHESIS AND FINDINGS

The general hypothesis of the study stated in the Prospectus follows: "The organization of language arts and social studies teachers into teams responsible jointly for large groups of students and the organization of such students into large and small groups for specified learning activities will result in an efficient use of both teacher and student time." The sub-hypotheses follow:

Scheduling

1. "The scheduling of certain faculty members into teacher teams is feasible in a large junior high school."

The school class schedule (not reproduced in this summary) as it actually operated during 1958-59 shows that, in a complex junior high-school curriculum with many interacting demands, it is feasible to

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schedule large groups of students (226 in this instance) into alternating large and small classes, and likewise to schedule faculty members into required teams. Within the demands created by this study, it is clear that sub-hypothesis 1 is supported.

Pupil Achievement

2. "The pupils of the eighth grade of the Wahlquist Junior High School in the subject areas of United States History and Language Arts scheduled in this program will achieve academically at a satisfactory rate in terms of national norms and textbook publishers' norms."

Tests of mental maturity and of achievement were administered by the district director of pupil personnel and the school counselors in the regular, standard manner. The *California Mental Maturity Test*, short form, was given to the eighth-grade pupils in September of 1958 to determine whether or not this group's I. Q. range was within the limits of an unselected group. The mean I. Q. of 96.2 indicates that the average I. Q. of the eighth-grade class was 3.8 points below the established norm. The standard deviation was 5.8, the I. Q. range was from 70 to 129. The distribution approximated a normal distribution curve and, for the purpose of this study, it may be considered that the I. Q. range was within the normal limits for an unselected group.

The *California Achievement Test* was given in May of 1958 to the seventh grade and again in April of 1959 to the same group, now in the eighth grade, to determine the achievement rate of the group. There is evidence in Table I that the eighth-grade class made a mean gain of 1 year 7 months. The greatest gain was made at the 25%ile level with the next greatest at the 50%ile. The gain at the 25%ile may indicate the effect of the special education class, a group of lower ability students who were included in part of the team project. It is evident that the eighth-grade class achieved at a rate slightly beyond that expected in terms of the standardized norms.

The 1959 eighth grade made a mean gain of 4 months over the 1958 eighth-grade class at Wahlquist. It is evident that the eighth-grade class in the teacher program did as well or slightly better than the eighth-grade class of the previous year under the traditional type program.

TABLE 1. Amount of Gain Made on the California Achievement Test

	<i>M</i>	<i>SD</i>	90%ile	75%ile	50%ile	25%ile
Eighth Grade, 1959.....	8.9	1.6	10.3	9.5	8.3	7.3
Seventh Grade, 1958.....	7.2	1.3	8.9	8.1	6.4	5.3
Gain.....	1.7	.3	1.4	1.4	1.9	2.0

Although the prospectus did not call for a comparison of achievement, it might be well to compare the Wahlquist 1959 eighth grade with the Wahlquist 1958 eighth grade as shown in Table 2.

TABLE 2. Comparison of Achievement of the 1958 and 1959 Eighth-Grade Classes at Wahlquist

	<i>M</i>	<i>SD</i>	90%ile	75%ile	50%ile	25%ile
Eighth Grade, 1959.....	8.9	1.6	10.3	9.5	8.3	7.3
Eighth Grade, 1958.....	8.5	1.6	10.3	9.6	8.4	7.2
Gain or loss.....	4	0	0	-.1	-.1	.1

In comparing the 1959 Wahlquist eighth grade with the two other junior high schools in the district, as shown in Table 3, we see that there is some variation in achievement at the different levels. The Wahlquist group made the highest mean score and the lowest score at the 90th, 75th, and 50th percentile levels.

TABLE 3. Comparison of Wahlquist, South, and Roy Jr. High Eighth-Grade 1959 Achievement Scores

	<i>M</i>	<i>SD</i>	90%ile	75%ile	50%ile	25%ile
Wahlquist Jr.....	8.9	1.6	10.3	9.5	8.3	7.3
South Jr.....	8.7	1.7	10.8	9.8	8.7	7.2
Roy Jr.....	8.5	1.5	10.6	9.7	8.5	7.4

A comparison of the Wahlquist eighth grade to the *California Achievement Test* norms is shown in Table 4. The mean gain at the Wahlquist school was two months above the test norms. The 25th percentile was 5 months below the C. A. T. norms. It should be noted that the entire Weber County eighth-grade classes were slightly below the C. A. T. norms in both 1958-59.

TABLE 4. Comparison of the Wahlquist and C. A. T. Norms

	<i>M</i>	<i>SD</i>	90%ile	75%ile	50%ile	25%ile
Wahlquist.....	8.9	1.6	10.3	9.5	8.3	7.3
C.A.T. Norms.....	8.7		10.3	9.6	8.6	7.8
Gain or Loss.....	.2		0	-.1	-.3	-.5

It seems evident that the Wahlquist eighth-grade pupils progressed at a satisfactory rate for the year 1959 according to the C. A. T. results even though the mean I. Q. of the group was 3.8 points below the mental maturity test norms.



The overhead projector is used in presenting map overlays and transparent rubber-lift materials. The transparent acetate roll has various uses such as presenting proper outline methods and questions from reading assignments. The instructor is pointing to one of the trails used in westward expansion. A loud-speaker overcomes audio difficulties in the large group.—Wahlquist Junior High School, Weber County, Utah



Large group in auditorium.—Wahlquist Junior High School

In the area of United States History, the end-of-the-course examination was given to measure the standing of the group in this subject. The publisher's test did not have a set of standard scores. However, the test had a possible score of 70 points. Wahlquist mean score was 38 with a range from 10 to 65. The average score of 38 is 3 points above the middle score of the test. It seems that we may assume that the Wahlquist class achieved at a satisfactory rate in the area of United States History.

The publisher's end-of-the-year test in Language Arts was given to measure the standing of the group in that subject area. In the area of Language Arts the Wahlquist class scores on the end-of-the-year test are compared to the textbook publisher's norms in Table 5.

TABLE 5. Comparison of the Language Arts End-of-the-Year Test Results with the Textbook Publisher's Norms

	<i>M</i>	75%ile	25%ile
Wahlquist	180	195	159
Text Publisher's Norm	180	203	156
Difference		-8	3

The mean score made by the Wahlquist class was the same as the text publisher's norm. The Wahlquist class fell slightly below the text publisher's norm at the 75th percentile but was above the publisher's norm at the 25th percentile.

It is evident that the mean achievement rate of the Wahlquist group was satisfactory as indicated by the Language Arts end-of-the-year test results.

Pupil Attitudes

3. "The effects of this type of organization upon the pupils in the areas of social interaction, attention, and learning attitudes will be satisfactory."

A questionnaire was designed and administered by the district director of pupil personnel to obtain the pupils' evaluation of the teacher-team program. The form was constructed to obtain the pupils' attitudes as to how well the teacher-team program met the conditions necessary for efficient learning in both the large and the small groups and to obtain the pupils' evaluations of the total program. The questionnaire covered the following areas which are considered essential if effective learning is to take place: provision for proper motivation, provision for individual differences in maturation, provision for conditions free from anxiety and distracting influences, provision for goal-directed drill and practice, provision for the pupils to perceive the results of their trials and efforts, provision for the pupils to generalize their learnings and transfer their training, and provision for teacher guidance.

The questionnaire was given to all pupils in both the large and small groups. In the large group the pupils felt that the greatest weakness in the program was in the area of distracting influences. The problem most frequently expressed was "It is hard to do work in this class because of the seating arrangements." Presumably this problem can be overcome by the school administration.

The effective learning condition which was best met in the large group was the provision for generalizing learning and transferring concepts into new learning situations. The provision for generalization and transfer of training is one of the most desirable ends in a learning situation and was evidently accomplished in the large group, according to the pupils.

In the small group the pupils felt that the greatest weakness in the program was in the area of teacher assistance in establishing the pupil's learning goals on an individual basis. The main complaint was that "we are all required to work the assignments the same way." This may be a result of the general assignments given in the large group.

The effective learning condition which was best met in the small group was the same as in the large group. This was the provision for generalizing learnings and transferring concepts into new learning situations.

Table 6 presents a comparison of responses made to the questionnaire by pupils while in the large group and while in the small group. The same questions were asked of the same pupils in each setting. The responses should indicate their feelings toward these group arrangements. The questions were all negatively stated and the pupils checked only those statements which seemed to fit the group they were in at the moment. Therefore, a high score indicates a feeling on the part of the pupils that the program was weak in providing for that particular learning condition.

It is evident that the pupils felt that success in meeting these needs was lowest in the large group in all areas. In the pupils' evaluation of the total team program, 129 pupils checked the statement that they were happy with the amount of knowledge they had gained this year in the teacher-team classes. One hundred and twenty-nine pupils stated that "the lectures in the large group followed by the help given in the small group made it easy to learn." Twenty-four pupils checked the statement

TABLE 6. Pupils' Attitude Toward the Teacher-Team Program in Regards to Its Providing the Conditions for Effective Learning

	Motivation	Freedom from Distraction	Maturation	Drill and Practice	Trial and Effect	Generalization and Transfer	Teacher Guidance
Small group . .	83	49	88	88	96	43	106
Large group . .	125	220	99	115	141	84	127

2. It was reported by 95% of the students that learning was made easier by the instruction in the large group.

3. Every student reported he liked having the teachers alternate instruction in the large group. They stated they enjoyed the variety.

4. The question as to what the students liked about the large group brought forth many different answers, but nearly 90% reported they liked visual aids, such as map work on the overhead projector, filmstrips and flannel board exhibits. Many reported they liked student reports, stories read by the teachers, and student participation in the programs.

5. The question as to what the students disliked about the large group brought to light only one major complaint. Nearly every student reported they disliked the seats in the large group. The seats were designed for choral use and are very close together with no arm rests or writing surface. It is very difficult for the students to do any writing in this particular classroom. Some students objected to being seated so close together. They also felt it took too long to get started on some days when there was considerable equipment to set up.

that "I would rather have the English and United States History taught separately and in two small groups." Twenty-three checked the statement that they did not like the large classes because the teacher could not help them as much.

The pupils indicated in their response to the questionnaire that the essential conditions for effective learning were better met in the small group than in the large group, but the majority favored the teacher-team program over the traditional type of program.

In addition to the questionnaire referred to above, another questionnaire was administered by the Utah Central Research Committee to one sub-group of 34 students in the eighth grade. A summary of responses to the questionnaire shows the following student responses:

1. Over 80% of the students would rather meet in the large group than in a small group. Another 15% would like to meet at least three or four days per week in the large group. Only 5% reported liking the small groups better.

FACULTY AND ADMINISTRATION ATTITUDES

The reaction of the school faculty and the school and district administration will be favorable to the continuation of this organization. In May 1959 the Utah Central Research Committee administered to the faculty (23 teachers) of the Wahlquist School a questionnaire designed to elicit their reaction to the project. Since only 4 teachers were directly and continuously involved in the study, the responses to this questionnaire should reflect its effect on the faculty as a whole.

The faculty responses seem to indicate a generally neutral attitude, leaning toward favorable, in most items. It would appear that the faculty as a whole is friendly to the project and would like to see it continued. It feels that the project has some potential values for good education.

THE TEACHING TEAM'S EVALUATION OF THE PROJECT

The Teaching Team is enthusiastic about the project and feels that it has been successful enough to warrant a continuation of the study next year. This first year was necessarily one of uncertainty because of not knowing exactly what to expect, not having needed equipment on hand, and not knowing exactly what would be effective. Although our year's work was planned and each unit and its objective worked out, there was a great deal of outside time needed to develop the daily lesson plans and to adapt the ones that needed changing.

The Teacher Team Project grew out of the belief that some activities can be carried out as well in a large group as in a small one. We have been attempting to determine which activities can be worth while in the large group and which need presentation in a smaller group. We found more activities were effective in the combined classes than we had, at first, thought possible. Some activities were found to be largely ineffective in the group of 115, history discussion for example. In addition to releasing two teachers for preparation time, the larger grouping also triples the uses of visual aid equipment, for here one projector does the work of three.

The success of the presentations before the combined classes is dependent upon two basic factors. Good physical facilities are a must, plenty of space, comfortable seating with writing area for students, blackboards, and bulletin boards. Secondly, very careful and thorough preparation on the part of the teachers plus unlimited enthusiasm. Visual aids are a vital part of these plans. None of us would care to go before the 115 eighth-grade students without a great variety of audio-visual aids. Of all the visual aids, perhaps the most valuable is the overview, which provides a particularly effective way to conduct map work. It also enables instructors to make transparencies of important current news events.

CONCLUSIONS

The data gathered during the first year of the experiment using a teaching team approach to instruction in United States History and Language Arts in the Wahlquist Junior High School support the hypothesis and sub-hypotheses described in this report. Tests in the subject areas given near the end of school indicate that the pupils learned as much in this program as did eighth-grade pupils in regular programs in other schools. In fact, there was no significant difference in the learning outcomes as shown by the standardized tests.

The county director of secondary education, the principal of the school, and the team teachers endorsed the program for its better utilization of time and competencies of teachers. It also provided for a more productive system of education for the pupils in the experimental organization as compared with eighth-grade pupils in a comparable situation in other schools. All concerned with the project are enthusiastic in their desires to see the teaching team at Wahlquist Junior High School continued.

Paraprofessional Helpers in a Language Arts Program at the Logan City High School, Utah

MATTHEW F. NOALL
PARRY WILSON

AN EXPERIMENT was conducted in the Logan City Senior High School during the school year 1958-59 in the use of paraprofessional personnel in a senior high-school language arts program. For a number of years, Logan High School personnel have been concerned about student achievement in language arts classes. Students have scored significantly below national norms, particularly in the areas of vocabulary, mechanics of expression, and in total English scores as measured by the *Cooperative English Tests*.

Teachers have in the judgment of the administration, been overburdened with the routine requirements of teaching in such essentials as reading and correcting papers, giving and interpreting tests, and other daily routines to the extent that they lacked the time and energy to make the necessary small group and individual contacts to achieve desired results.

In the light of circumstances, might an improved language arts program be effected? Would it be possible to assign more written work to students without employing more English teachers? Could assistants be used in and out of the classroom to relieve the regular teacher from many of the routine time-consuming activities required in teaching? These and similar questions prompted participation in the experimental study herein described and reported.

HYPOTHESES

The use of paraprofessional assistants, supported by the proper cooperation of school administrators, professional teachers, and students, will improve the teacher-learner results in the following ways:

1. Teachers will be freed to devise more effective procedures in language arts by the paraprofessional helper.
2. Through the wise use by teachers of the released time, such activities as more writing, teacher-student interviews, small-group instruction, classroom planning, inter-teaching consultations, teacher-paraprofessional discussions,

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selection of literary and other materials, and evaluating teaching procedures, will enable the language arts program to be enriched and better learning will be promoted.

3. Teachers of long experience may be led to break with tradition, to accept an experimental approach in the instruction of large groups, to recognize their special professional competencies, and to use them mutually.

4. The language arts offering can be enriched or extended through the use of audio-visual aids, special lectures, demonstrations, or group discussions made possible by the use of paraprofessional assistants.

RESEARCH DESIGN AND PROCEDURES

Essentially all of the eleventh- and twelfth-grade students at the Logan High School, 444 in actual count, were involved in this study. Those participating were divided into experimental and control groups as follows:

Experimental—Three sections of eleventh grade with from 39 to 42 students each, and four sections of twelfth grade with from 38 to 41 students each.

Control—Four sections of eleventh grade with from 20 to 35 students each, and two sections of twelfth grade with 26 to 29 students each.

This grouping of thirteen sections replaced the usual practice of providing the same classes in fifteen uniform groups of 29-30 students each. Such grouping saved virtually two fifths of the time of a teacher per day. Both experimental and control classes were taught by the same teachers and both types of classes were taught throughout the day. The class schedule did provide some opportunity for these teachers to combine groups on occasion for presentation of materials or the introduction of a new unit.

Each group, experimental and control, was administered a *Henmon-Nelson Intelligence Test* and the *Cooperative English Test* at the outset of the experiment, but no attempt was made to match groups on the basis of intelligence or achievement in English. By means of the chi square comparison, no bias was present between male and female against experimental and control groups in the eleventh grade, male and female against the combined experimental and control groups in eleventh and twelfth grades. However, chi square comparison of total male and female assignments against the eleventh and against the twelfth grades showed a greater number of males in the eleventh grade and females in the twelfth grade than could be expected by chance at the five per cent level. The control groups, eleventh and twelfth grades, were taught by the methods traditionally in use in Logan High School.

The experimental groups were taught with methods developed by teachers during the time made available through the use of paraprofessional assistants. Each teacher of an experimental group was given the services of an assistant to the extent of six to ten hours per week for each experimental group.

THE PARAPROFESSIONAL ASSISTANT

For the purpose of this study, a paraprofessional is a person of lesser qualifications than a professional teacher, but is yet capable of working with a teacher in the performance of tasks delegated to her by the regular instructor. In contrast to the professional, the paraprofessional is exempt from certification and other legal requirements, but is judged by school administrators as being capable of performing necessary and valuable services of a routine and somewhat professional nature.

The four paraprofessionals employed in this project, however, were professionally trained teachers. All had graduated from college, three with English majors and one with an English minor. Two had had secondary-school teaching experience and the other two had had college teaching experience.

The activities of the assistant were determined mutually between the teacher and the assistant and thus varied between teams. In one case, the assistant never participated in the classroom, confining her activities to those tasks which could be done at home. The other three assistants spent considerable time at the school assisting with classroom routine; conferring with students; serving as laboratory assistants during class supervised study; conducting class periods during which movies, filmstrips, and recordings were in use; and providing remedial instruction for those in need of special help and seminar-type assistance for the academically talented members of the group. Major functions of the assistant were to read and correct themes, to proctor and score tests. While the assistant provided these services, together with clerical assistance in recording data related to student progress and pupil accounting, the basic responsibility for the teaching-learning process remained with the regular classroom teacher.

1. STATISTICAL COMPARISON OF ACHIEVEMENT, EXPERIMENTAL VS. CONTROL GROUPS

Each student at the outset of the school year was administered a *Henmon-Nelson Intelligence Test* and the *Cooperative English* tests. At the close of the school year, the *Cooperative English* tests again were administered. The method employed to estimate the final comparisons of the experimental group against the control group was that of analysis of covariance, multiple classification. This was corrected for any possible bias in initial assignment to class and to group. Each grade was analyzed separately and the final adjusted means were:

Eleventh Grade, Control Group	148
Eleventh Grade, Experimental Group	151
Twelfth Grade, Control Group	170
Twelfth Grade, Experimental Group	161

In summary, initial sex differences were not significant statistically. Any difference in the means of the experimental and control groups in intelligence or initial achievement have been adjusted by this analysis to a common mean initial level of performance and the final achievement analyzed against this value.

The difference in the eleventh grade, although in favor of the experimental group, was not significant. However, the difference in the twelfth grade in final achievement scores was significant at greater than the one per cent level in favor of the control group. The data as presented will not support the first and second hypotheses as stated in this report.

2. TEACHER AND PARAPROFESSIONAL ASSISTANT REACTION

Both the participating teachers and the paraprofessional assistants were asked to submit their reactions to the project. To summarize briefly, the paraprofessionals enjoyed participation in the experiment. They felt that improvements, as evidenced by samples of students' work, had been made. It was their belief that more individual attention was given each student by the paraprofessional, the regular teacher, or both, than would normally have been possible. Their suggestions for an improved program will be noted later.

The reactions, favorable and unfavorable, of the teachers involved are summarized as follows:

A. Favorable

(1) A more extensive English composition program was made possible through the use of paraprofessional assistants. One teacher reported approximately 70% more themes were assigned and written in the experimental group as compared with her control group.

(2) A more extensive and comprehensive mechanics of expression program was made possible through the use of the assistant.

(3) A special scientific vocabulary program was initiated for the first time this year in twelfth-grade English classes.

(4) An enriched literature program was made possible through the utilization of special interests and talents of the assistants.

(5) A greater utilization of special talents of individual teachers was made through exchange of groups of students and of teachers in teaching certain units of work.

(6) More cooperative planning of classroom instruction between English teachers was brought about.

(7) More individual and small group conferences and more instruction were made possible where the assistant was available for classroom participation.

(8) Objective constructive criticisms of written work made by the assistants with college teaching experience provided motivation for the better student.

B. Unfavorable

(1) There was often considerable time lag in getting sets of papers collected, delivered to the assistant, corrected, recorded and returned to the students. This made continuity of programming difficult.

(2) Correcting and criticizing written work is quite subjective; what may appeal to one reader may not appeal to another. Criticizing creative writing particularly posed problems for both teacher and assistant.

(3) Educational philosophies of teachers differ. When in conflict between teacher and assistant; difficulty in the working relationship between the two may be the result.

(4) Increased class load and increased written output by students result in increased record keeping, pupil-accounting, and individual conferences. This results in an increased load on the teacher if the assistant is not available for classroom participation.

(5) Increased classroom enrollment results in increased discipline and daily administrative problems.

(6) Holding conferences with the paraprofessional assistant is time-consuming.

(7) Unless ability grouping is used, large classroom enrollments result in greater distribution of abilities within the class and increase the number of groups to be organized within the class for small group activities. Too many groups within a class result in interruption and even in confusion.

(8) Although the amount of written composition increased, less time was devoted to literature, and far less time was devoted to oral work.

(9) Large groups provide too much obscurity for the shy, reserved student—he is less prone to participate in class discussions.

(10) Paraprofessional assistants, though well trained and cooperative, may have other out-of-school obligations which divert their time and attention to the exclusion of their school assignments.

It was the preference of the teachers involved in the experimental program that they be assigned smaller groups without the help of an assistant rather than large groups with assistants. The positive and negative reactions of teachers, however, to the experimental program presents evidence both for and against hypothesis number three. The evidence also indicates the potential of a paraprofessional assistant program. It likewise indicates the necessity of a well-planned program of orientation for teachers, assistants, and pupils to support the program.

3. STUDENTS' WORK

Attempting to determine the success of this experimental study by means of comparison of samples of student work carries with it all the limitations inherent within a subjective rating made by an individual. As previously noted, the paraprofessional assistants indicated in their reactions to the project that considerable improvement in the written work of the students was evidenced as a result of a study of samples of this work. The assistant was assigned the responsibility of retaining typical samples of each student's work. Likewise, the teachers felt considerable improvement had been made both from the standpoint of

grammatical construction and creativity. Such improvement, in their judgment, was more noticeable in the written work of the experimental groups, eleventh and twelfth grades, than in that of the control groups. This data supports hypothesis number four.

4. ECONOMIC IMPLICATIONS OF EXPERIMENT

A well-planned program of helpers to assist professional English teachers in extra large classes could have great economic implications to a school district. In this experiment two fifths of the time of a regular teacher was saved by combining pupils into 13 instead of 15 regular class sections. The helpers who were paid at the rate of \$1.50 per hour, relieved the time of professional teachers whose average salary was \$5,019 each. The total cost to the district for the services of paraprofessional assistants for the year was \$972. Two fifths of the regular teacher's salary, the time saved, amounts to \$2,003.60. The difference between the two figures, \$1,031.60, represents the value of teacher time saved by hiring helpers.

RECOMMENDATIONS AND CONCLUSIONS

1. A program of paraprofessional helpers in the language arts has a potential for improved utilization of the time of a professional teacher.
2. The classroom teacher must have a desire and a willingness to share responsibilities with an assistant.
3. Careful selection of paraprofessional assistants needs to be made. Teachers should be given some responsibility in the selection of their assistant. If the assistant is a professionally trained person, a similar philosophy of education by teacher and assistant is most important; likewise compatible personalities should be selected.
4. An extensive preparation period should be provided before initiating a program using paraprofessional assistants.
5. The regular teacher and the assistant must agree on policies such as theme correction and grading procedures.
6. The paraprofessional assistant needs to be available for participation in the classroom for most effective assistance.
7. Physical facilities more adequate than the normal size classroom should be provided. Additional space for small-group instruction and individual conferencing is highly recommended.
8. Regular periodic conferences between teacher and assistant are necessary.

The use of a paraprofessional personnel in a language arts program has possibilities for a school district faced with problems of increasing enrollments and limited physical facilities. Objective evidence to prove the values of paraprofessional assistants by teachers of English classes with enrollments of forty or more students is not provided in this experimental study. Subjective evidence, however, leads one to conclude that, in spite of numerous administrative and personnel problems involved, paraprofessional assistants can be used effectively in language arts teaching. They can make possible a more effective use of time and competencies of the professional teacher.



This biology teacher contacts students twenty-two periods a week. He has eight periods for preparation, in addition to some time which becomes available if another teacher handles the larger groups. This preparation time makes it possible for him to prepare a superior lecture for the large class.—Jefferson County (Colorado) Public Schools



An experienced professional is recording some material at a convenient time. While the other team members are handling a large group of English students, he is able to make preparation for a later lesson and record ideas which will assist the less experienced teachers. This is a timesaver, not a teacher substitute.—Jefferson County (Colorado) Public Schools

Part IV

Studies Started in 1958-59



Three groups of the seven or eight in the room receive the attention of the team leader and one of the non-credentialed aides. An additional teacher and aide are circulating among other groups in an adjoining room, where they are available for answering questions, directing thinking, or suggesting procedures.—San Diego, California, City Schools



A small group of nine students out of a class of sixty-five receive help from a non-credentialed aide. The students at the typewriters are in need of special help while those at the desks are working on the basic business assignment. A larger group of fifty-six pupils is in an adjoining room working on the typewriting assignment with the team leader in charge. The personnel of the small group changes every day so that all of the sixty-five students have an opportunity to receive this help frequently.—San Diego, California, City Schools

Team Teaching in San Diego—The First Year

LEE L. BLOOMENSHINE

IN THE San Diego City Schools, we have completed the first year of an experiment in the team approach to teaching. This article is an attempt to tell what we did, how we did it, and what were the results. The reader will find some rather detailed descriptions of how we got started, some frank admissions of mistakes made, and some recorded differences of opinion as to results achieved. All in all, the summary will report an exhilarating experience with clear professional gains and a promising potential for future use.

PURPOSES AND SETTING

First, the reader should be aware of what we were trying to accomplish. These were our stated objectives:

1. To extend the use of available, skilled teachers with a large group of students
2. To provide for effective instruction using some non-credentialed services in lieu of services of regularly certificated teachers
3. To assist in the recruiting of component people to be the teachers of the future
4. To improve the quality of instruction by a team approach

A better understanding of the experiment may be derived from some acquaintance with the setting in which it took place. San Diego is the most southwesterly seaport city in the United States. It has a population of more than one half million. The public school system is seventeenth in enrollment in the nation and is growing at the rate of 8,000 per year. To meet the demands of this exploding population, school buildings are being constructed at a rate of almost a million dollars each month. New teachers are being aquired at a higher percentage of total staff than any other large city. Public sentiment in San Diego is favorable to education. Secondary schools are organized on the 6-3-3 plan.

Four schools were selected for the experiment, two junior and two senior high schools. Since it was planned to use noncertificated aides from San Diego State College on each team, schools within easy access to the college were chosen.

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No principal or teacher was required to participate in the experiment. From the list of volunteers after the experiment was described to the faculties, the principals selected those whom they considered superior instructors possessing the personality traits necessary for team work. In each case the one selected to be the team leader was an experienced teacher, and the assistant a promising teacher with one or two years in the classroom.

THE TAKE OFF

The year's work began on August 28, 1958, with six days of pre-school workshops. The first day was devoted to orientation, which consisted of a presentation of the purposes and plans for the experiment by the writer and a tape recorded talk by Dr. J. Lloyd Trump, director of the Commission on the Experimental Study of Utilization of Staff, which was directed specifically to the situation in San Diego. Dr. Trump's taped talk, "An Image of the Future in Staffing Secondary Schools," was both inspiring and practical. It not only aroused the enthusiasm of the group and offered suggestions that were most useful, but it was also a very realistic demonstration of the effective possibilities in the use of auditory aids.

During the other four days of the workshop, the mornings were spent selecting the subject areas, outlining the material for class presentations, and organizing the class procedures pertaining to the team approach. The teams met in separate rooms by schools and the principals acted as counselors and guides the first two days. The last four days the team leaders were in charge of their particular groups.

During the afternoons, assemblies of the entire workshop group were held and the team leaders reported to the group as to their plans. In the discussion following each report, members of the group were encouraged to criticize constructively and to contribute suggestions for the improvement of the team's work. In this way, by learning what others were planning, many proposals and ideas were obtained for the revision and refinement of the lesson plans, methods, and procedures.

Coordination of these and other activities throughout the year was effected by T. Malcolm Brown, retired assistant superintendent. Mr. Brown's acquaintance with the San Diego City Schools through years of service as an administrator made his choice as coordinator a fortunate one.

ORGANIZATION OF TEAMS

In physical education the students were assigned to sections in the same manner as in all classes of physical education. Three sections were then combined and two teachers assigned. The team leader was an experienced teacher in grades seven through twelve, the second team member had no previous public schools teaching experience, but was more mature than the average beginning teacher, had been especially recom-

mended by the teacher training institution on the basis of superior potential in the instructional program as demonstrated by both practice teaching and assignment as assistant instructor for college classes.

Here is the way teams were set up in the participating schools.

WILL C. CRAWFORD SENIOR HIGH SCHOOL

Enrollment: 1,676

Principal: Mrs. Mary I. McMullen

Boys Physical Education Team—106 students

1 team leader

1 teacher

2 aides

The significant differences in instructional plan for physical education was the opportunity provided for individual or small group instruction for the boys in need of remedial developmental and adapted experiences. These would vary in individuals in different units of instruction so that no fixed homogeneous grouping was maintained through a semester or year. This great flexibility in grouping boys when four adults were available permitted 100 per cent participation in classes, impossible in a conventional class.

U. S. History 11th Grade—103 students

1 team leader

1 teacher assistant

2 aides

United States History was offered to two sections. No selective criteria were used in assigning students to periods. Two periods were offered and in each period the equivalent number of students for three sections were included.

The teachers were selected on the basis of demonstrated superiority in teaching and interest in the opportunity for investigating the possibilities in improving instruction through the modification of techniques possible in the project. One, the team leader, had had teaching experience in grades seven through twelve and in social studies, English, and mathematics. The second member of the team had one year of experience in social studies, including United States History.

In the United States History sections the classes met on occasion as a total group (approximately 100) instructed by one team member and for use of audio-visual materials; as small working groups according to demands of the learning situation; or for the most part, as two groups (45), each under one certificated team member.

A vital part of the success of this type of class structure rests with the provision of common free time when all members of the operating team can plan together. This was not adequately provided for since the time set aside in the schedules of all of the certificated team members was encroached upon from time to time by other school duties.



A normal situation in boys' physical education where the two teachers and two non-credentialed aides direct a variety of activities in physical education—calisthenics, basketball, volleyball, and volley tennis. The team approach makes it possible for more students to obtain definite and detailed instructions, resulting in greater learning from direct and continuous supervision.—San Diego, California, City Schools



Students are listening to and taking notes on a lecture dealing with the policy of imperialism in the United States around 1900, by the team leader who is using a Vu-Graph. There are 103 students in the class—those not within range of the camera are seated to the right of the teacher on the other side of the cafeteria which was being used for large-group instruction. The picture shows a very natural situation with the students interested in the projected picture on the wall of the room, with the assistant teacher and aides providing help as needed.—San Diego, California, City Schools

ABRAHAM LINCOLN SENIOR HIGH SCHOOL

Enrollment: 1,437

Principal: Dr. Earl P. Andreen

American Government and Problems—12th Grade—90 students

1 team leader

1 teacher

2 aides

Biology and General Science—10th Grade—77 students

1 team leader

1 teacher

2 aides

SAMUEL COMPERS JUNIOR HIGH SCHOOL

Enrollment: 2,138

Principal: Dr. William J. Stone

Typing-Basic Business—62 students

1 team leader

1 aide

The typing-basic business team, the smallest of the three, involved one experienced teacher as team leader, assisted by an aide working with a total of 75 ninth-grade students per period during two periods of the school day with the aide working an additional two hours on clerical and related teacher assistance.

English-Social Studies Team—80 students

1 team leader

1 teacher

2 aides

The English-Social Studies team is the next largest in size. It consists of one experienced teacher as team leader with a beginning teacher assisted by two aides (four hours each), all working with a total of 90 ninth-grade students during two periods of the day.

Girls Physical Education Team—124 students

1 team leader

1 teacher

2 aides

The girls' physical education team represents the largest of the three teams. In this instance, the team leader, an experienced teacher, is also the chairman of the physical education department. She is assisted by a beginning teacher and two aides (four hours each), all working with 120 eighth-grade students per period during the course of two periods of the day.

Selection of Subject Areas and Teachers

An important factor considered by the local site administrators in the selection of subject areas for staff utilization teams included placement

of the teams in various subject areas so that each team could be supervised by one of each of the three vice principals. Other factors, of course, included selection of departments where experienced teachers were present and interested in serving as team leaders. Selection of subject areas was likewise influenced by flexibility in curriculum requirements to permit experimentation, interest of the teachers in the department in having a team, interest on the part of the central office supervisor, avoidance of conflict with other on-going programs—the intern program, experimental advanced courses in mathematics, science, world history, and the like. The problem of working the team situation into the master schedule was likewise a factor for consideration. Physical plant facilities and adaptability to team approach constituted a major factor in determining the selection of subject areas and teachers.

HORACE MANN JUNIOR HIGH SCHOOL

Enrollment: 2,361

Principal: Mr. C. Russell Henzie

Girls' Physical Education—125 students

1 team leader

1 teacher

2 aides

Classes were selected by virtue of the coincidence that two ninth-grade classes fell consecutively and the two women instructors who were to be team members were assigned those periods. The plan to enter the project was not made until after the master program had been completed and ability to adapt it was difficult because of the large enrollment and limited facilities. There were 120 to 130 girls programmed in these two periods (5 and 6) throughout the school year. The team consisted of the team leader and a third-year probationary teacher. They were assisted by two aides assigned for a four-hour period.

It was agreed that the course was very much the same for these two groups as with the other ninth-grade section. First semester, the special strengths and skills of one of the aides contributed not only to these groups, but to the general physical education department, resulting in broadening the total program. Facilities for demonstration and instruction with the very large group were quite inadequate. Dividing the group in half or giving the aides specific instruction in dividing into four groups has been appraised by the physical education teachers as more difficult and exacting than handling a normal size group of 40 to 45 girls. They still felt that they were basically responsible for the evaluation of each girl, being aware of weaknesses and strengths for marking purposes, which made an added burden at each quarter report. A few students felt that their class was too large and that they did not have sufficient individual help and attention.

Drama Team—50 students

1 team leader

1 aide

This area was selected because of the existence of a facility that would hold an oversized troupe and the presence of a teacher who it was felt could adequately guide the experiment. This program was set up for the first and second periods of the school day and from 48 to 55 students were enrolled in each class. The team consisted of the teacher and his aide, who was employed for a four-hour period daily. The room used for the central meeting place was the little theater, which has a capacity of 88 students. This room is located immediately across the hall from the auditorium. The stage and orchestra pit of the auditorium and the cafeteria were used for small group rehearsals and meetings.

The team leader reported that the Staff Utilization Project gave him the opportunity to expand the learning experiences approximately 50 per cent or half again more than he was able to do in a regular class. This provided a much greater variety of experiences for his students and made possible a greater attention to their individual needs by a teacher. Such experiences as the study of makeup technique and stage design were worked into the curriculum by way of the small group, in detail enough to meet the needs of individuals interested. He stated that it was one of the first opportunities in his teaching career to spend an uninterrupted hour with a small group on one project, be it a play, a skit, or a pantomime. It was his opinion that this program had greatly enhanced the quality of his drama sections.

PROBLEMS APPEAR

After the first few weeks of the experiment, we began to identify problem areas. Here are a few:

Physical facilities were not always adaptable to the plans for instruction. Individual differences became apparent among team members. Some were more amenable to team techniques than were others.

Questions such as the following were typical: "What is the job description for the aides? Does it have to be the same for all aides? Some have had more experience than others. Can't we use this experience?" "When and how is the work of the aides to be evaluated and who does it?" "How can the team leader get enough relief to prepare for large group presentations?"

Such questions as these, and many others, provided points of departure for group discussions under the direction of the principal. A variety of problem-solving approaches was used. Workshops involving the entire participating staff proved to be more profitable.

Workshops Are Helpful

During the year, four Saturday workshops were conducted, three of which were attended by the principals and teachers while one was reserved just for principals to write up the reports of their individual schools.

At the first two Saturday workshops, Dr. Donald McNassor of the Claremont College Graduate School addressed the group. At the November 15 workshop his topic was "The Teaching-Learning Process in a Community of Learning." At the second workshop on February 7, he addressed the group on "The Dynamic Possibilities of the Team Approach." Prior to this second workshop, Dr. McNassor spent some time observing all the classes, talking with the teachers, and meeting with groups of students at both the junior and senior high-school levels. Following these presentations the teachers met separately as teams or in combined groups to review the progress to date and plan for the work ahead.

EVALUATION

From the outset it was agreed that there should be an outside audit of accomplishments in the experiment. As participants we did not wish to be in a position of passing judgment on our own efforts. With the approval of the Commission, Dr. George A. Koester, Professor of Education at San Diego State College, was designated to be responsible for evaluation. He devoted much time to observation of the project and to development of evaluative procedures. Early in May, Dr. Lawrence E. Vredevoe, Professor of Education at the University of California at Los Angeles, was engaged as a consultant to review the evaluation procedures being used. In this capacity he visited classes and advised with Dr. Koester on possible refinements of the plan for evaluation. Most of what follows is derived from Dr. Koester's evaluation report.

The procedures used in the evaluation of this project were designed to serve three functions: (1) to make a continuous appraisal throughout the year in order to make recommendations which might be implemented immediately to improve the program, (2) to provide information on the basis of which modifications might be made in planning the second year of the project, and (3) to evaluate the outcomes of the project in relation to the objectives.

A subjective appraisal of the program designed to identify strengths, weaknesses, and outcomes of the project seemed to be more appropriate than attempts to obtain objective data which could be analyzed statistically. Because no attempt was made to select schools which could be described as being "typical" of the secondary schools in the San Diego Unified School District and neither teachers nor their classes were selected on a random basis, inferences made from statistical treatment of objective data would have been open to serious question. Observation of the team instruction and reactions of the participants provided the information from which inferences were made concerning the outcomes of the project. Information and data were obtained from the following sources:

1. Observation of the classes being taught by the teams
2. Structured interviews with the teachers
3. Structured interviews with the aides
4. Diaries prepared by each teacher and each aide for a one-week period

Additional information was obtained during participation in Saturday workshops and meetings with the principals of the four participating schools and the project coordinator. These meetings also provided an opportunity for the project evaluator to make suggestions for modifications of the program and to discuss these with the participants.

THE AIDES AND THEIR REACTIONS TO THE PROGRAM

The Aides. The sixteen teacher aides for the fall semester, 1958, were juniors, seniors, and graduate students at San Diego State College, recruited and selected by the coordinator of secondary education. The process of selection included: (1) recommendation by faculty members of the department in which the student was majoring, (2) checking eligibility for admission to the program leading to a secondary credential, (3) contacting the students to determine whether or not they were interested in the position, and (4) assisting the students in planning programs of college classes which would permit them to work at the school during the scheduled hours.

Those currently enrolled in professional education courses were given credit for laboratory experience in working with high-school age youth which is required as a part of those courses. At the end of the fall semester, twelve of the sixteen aides were ready for student teaching.

Reactions to the program. Each of the aides was interviewed near the close of the semester. The purposes of these interviews were to get their reactions to the program and to determine whether or not they planned to continue in the program for the second semester. All of the students were enthusiastic about their participation in the program. They listed as highlights of their experience: (1) working closely with skillful teachers, observing their techniques of teaching, and assisting in the preparation of materials; (2) getting acquainted with the pupils, their behavior and achievement, through work with small groups and scoring papers; (3) an understanding of the over-all operation of a school program through the experience of ordering equipment and supplies and arranging for use of facilities for special needs; and (4) an appreciation of the number of routine and clerical activities which are a part of teaching, and of the importance of these activities in a school program. The students were unanimous in their feeling that these experiences were excellent preparation for student teaching, and had made their professional education courses much more meaningful.

These students had previously expressed their interest in teaching as a career and had demonstrated this interest by applying for admission to teacher education. The program of professional education at San Diego State College is designed to give all students an opportunity to observe and participate in the classrooms during their first course in professional education. This experience is provided to make the course work more meaningful and to give students a better basis for deciding whether or not teaching is the career which they want to follow.

One of the objectives of the project was to recruit teachers. It was of interest, therefore, to determine whether or not this experience as a teacher aide in any way influenced the decision of these students to enter the teaching profession. The duties of the aides included major responsibility for the routine, clerical activities which are considered least desirable and least satisfying by most teachers, and, as a result, might lead prospective teacher candidates to decide against teaching as a career. This was not the case for any of this group. They found that correcting papers gave them a better understanding of the abilities and achievements of the pupils, and they had sufficient participation in the classrooms to get a taste of the more satisfying aspects of teaching. Most important of all, they had an opportunity to work closely with skillful teachers who were also highly professional in their attitudes. The aides felt they were accepted in the schools as members of the teaching profession.

Almost all of the students expressed a desire to continue during the second semester. They did not consider it practical to do so, however, if this meant delaying their date of graduation or date of completion of credential requirements. For those planning student teaching in the spring, a schedule including work as an aide was virtually impossible. Required courses in the major or minor field interfered in some cases. Of the group of sixteen, five were able to plan schedules which would permit continuing as aides. Those who were not able to go on expressed the feeling that it was unfortunate they were unable to continue in a program which provided both some income and considerable professional growth.

Summary. The San Diego State College students who participated as aides during the fall semester, 1958, were enthusiastic about their experience. They looked upon it as a rare opportunity for professional growth and the experience reinforced their decision to enter teaching. They would recommend that other students who are given the opportunity to participate should do so.

THE TEACHERS AND THEIR REACTIONS TO THE PROGRAM

The Teachers. Two teams had only one credentialed teacher and one aide. These two teachers had considerable experience in junior high-school teaching. The other teams had one teacher, the team leader, with considerable teaching experience, and one assistant teacher with somewhat limited experience. Two of the assistant teachers were in their first year of teaching.

Reactions of the teachers. The general reaction of the teachers was very favorable. They felt that in this first year they had gained experience in the team approach to teaching which would be of value to them in the following year either as a participant in a team or teaching independently. The most frequently mentioned outcome of the program was the teacher's own professional growth. This was emphasized especially by the assistant

teachers, but was also mentioned by a majority of the team leaders. This professional growth resulted from the exchange of ideas on teaching methods, types of materials, techniques and tools for evaluating the work of the pupils. Perhaps even more important was the mutual stimulation the members of the team provided for each other, a strong motivation to do the best possible job of teaching. The team organization gave them more opportunities to give attention to the needs of individuals in their classes; although this advantage was tempered somewhat by the difficulty they encountered in getting to know their pupils well because of the larger classes. Working as a team also gave them an opportunity to try out teaching techniques which they had not previously used, or, in some instances; the courage to try out some new techniques because they were in an experimental situation.

They raised some questions about the effectiveness of the team approach with classes which were somewhat below average. Those teachers who had groups of this type felt that the pupils did not profit as much as might groups with somewhat higher levels of ability. The team leaders at times felt they did not have adequate time to organize and supervise team activities, a feeling which seemed to diminish as the year went along. Another problem expressed was that it was difficult to develop a feeling of unity when two classes were put together—it did not become one class, but was still two classes meeting together.

About half of the teachers felt they had maintained about the same pace in covering units of work as they did in comparable classes. Four of the teachers felt they had progressed more rapidly. The other four felt they had progressed somewhat more slowly, but that they had covered the material more thoroughly or had broadened their coverage of some units. They felt the team approach had made possible more enrichment for more able pupils in the class. This was accomplished in small group activities. A somewhat smaller number of the teachers felt they had not done as well in assisting the slower pupils, but still were able to do more than in their regular classes.

All the team leaders felt they had given more time for preparation and planning than they normally did for the same classes. Three of the assistant teachers indicated this was true for them also. The other three assistant teachers indicated they had not given more time for the team teaching than they usually did. This additional time taken for planning and preparation was partially due to the added time required to organize the team activities; an added factor was the motivation provided by working with others. Some time for this additional planning, organizing, and preparation resulted from the clerical assistance provided by the aides. Most of the team leaders indicated that not all of the additional time spent resulted from this help with routine activities.

An interesting observation made by one team was the reduced proportion of students who received "Unsatisfactory" marks in citizenship, pro-

portionately lower when compared to other classes. They felt their disciplinary problems had been reduced, even with large classes.

Some problems were encountered by the teachers. Not all of these were problems for all teams, but they are considered sufficiently significant to be reported. School plants in San Diego, as in most districts, typically have limited facilities for large groups of pupils. The cafeteria, auditorium, and little theater are most common. Some plants have included a large classroom which can be used. These limited facilities for use of large groups have proved to be somewhat of a handicap. They have not always been available at a time when the team had planned to use them. The team teachers indicated that the other teachers and the administrators had been very cooperative and had made every possible effort to make the large rooms available. There were times when conflicts were unavoidable, and the teams had to modify their plans. This was most serious when preceding activities of the class had led up to a logical next step of a large group meeting, but the meeting had to be postponed because no suitable room was available. Some of the teachers indicated they could adjust to these conditions, but on some occasions they had gotten negative reactions from the pupils, especially when they were placed in crowded classrooms or were in the rear seats of a long, narrow room which made hearing and seeing difficult.

A second problem was encountered when the schedule was so arranged that the credentialed teachers did not have a common preparation period. This was sometimes aggravated because the aide was not at the school during the preparation period. The feeling of the teachers was that it was difficult to function as a team when they had to arrange special meeting times to do the planning for team teaching.

Teachers found they had to make some changes in their teaching methods, and most of them indicated they were not completely satisfied that they had done an adequate job. They felt there was a problem in getting to know a larger group of pupils as well as they did in usual classes. They found they lost some time in getting a large class started in the activity—sometimes due to inadequate facilities and crowded classrooms. Some of them felt they were not as effective in teaching a large group; others felt they did not do as well with small discussion groups. They found that when pupils transferred into the class during the year the problem of orienting them to procedures was somewhat more difficult than in regular classes.

Those teachers who had common preparation periods and had their aides available during that period felt that had been very helpful, especially for developing a feeling of working as a team. Observation of the working of the teams, especially early in the year, confirmed this factor.

What are the characteristics of teachers who would be most successful in team teaching? The teachers who were in the program felt that open-mindedness, a willingness to participate in an exploratory or experimental project, and a willingness to share responsibilities were most important.

They considered it essential, also, that teachers should be willing to try new approaches even though they were risking the possibility of failure in some of them. They must be willing to continuously evaluate the results of techniques they use. They must like to work with large groups as well as small ones; to be able to make a presentation to a large group, and lead discussion with a small group. The team leader, especially, must be a good organizer and must have the ability to secure cooperation of the other team members. The teachers need to be strong disciplinarians, but especially must have the ability to develop self-discipline in the students so that behavior problems will not interfere with learning of the group when they are under the direction of an aide.

The teachers would like to have aides who are energetic, dependable, and have considerable initiative. All but two of the teachers indicated that a good background in the subject matter field was essential; those two teachers felt that clerical skills, especially typing ability, were more essential than knowledge of the subject matter. The aides should demonstrate genuine interest in the pupils and be able to establish good working relationships with them. It was the consensus of the teachers that the quality of team teaching, using aides as part of the team, could be completely successful only if the aides were very capable. Those teachers who changed aides at the beginning of the second semester were especially aware of the differences resulting when a more capable or less capable aide joined the team.

Some of the teachers had made a systematic attempt to get reactions of pupils to the team teaching situation; others had gotten only informal reactions. In almost all cases the pupils accepted the aide as another teacher or as a student teacher from San Diego State College. They liked having an additional adult in the classroom because they felt this gave them more opportunities for help. They liked presentations in which the teaching team discussed an issue in front of the class. In a few cases, they expressed the feeling that they were not sure who their teacher was. Lower ability pupils, especially, seemed to feel some lack of security in a larger group and having more than one teacher.

Summary. The teachers as a group felt this first year of the project had been a successful one. They singled out particularly their own professional growth, and the feeling that they had been able to do a more thorough job of teaching. They recognized that there were some problems created by the limited facilities available for large groups and by their own inexperience in the team approach to teaching. They felt this was a year of learning new techniques, of new ways to organize activities and course content. They were alert to the reactions of pupils and found some of the same insecurities among pupils as they themselves felt in a new situation. They identified some factors in the program which needed revision in order to make it more effective.

TIME-DIARIES OF THE TEACHERS AND AIDES

The members of each team kept a time-diary daily for a one-week period. A form was provided on which each team member recorded the time, in minutes, spent in various teaching and routine and clerical activities. The activities which involved large groups and small groups of pupils were differentiated.

These diaries were summarized, with particular attention given to: (1) large group instruction in the form of lecture, demonstration, and use of audio-visual materials; (2) small group instruction in discussion, activities, or supervised study; (3) small groups of pupils selected for special instruction in remedial work; (4) small groups of high ability pupils given special instruction or special activities; and (5) the role of the aide in team teaching. The diaries show a variety of roles in team teaching and illustrate ways in which the team approach can provide more effective instruction:

1. The opportunity for a large class to hear a lecture or see a demonstration given by a teacher who has the knowledge and skill to make a very effective presentation

2. The opportunity for pupils to participate in discussion in small groups, led by a skilled teacher, while the rest of the class was assisted in supervised study by the non-credentialed aide

3. The opportunity for slow learners and high-ability pupils to receive special instruction by a skilled teacher who does not have to divide his attention between the instruction of the special group and supervision of the remainder of the class

4. The evaluation of the level of achievement in skills by means of individual skills testing while the remainder of the class is engaged in a supervised activity

5. Instructional time of skilled teachers saved by having the services of the aides to conduct routine activities

6. Relief for the teachers from routine and clerical duties, providing some added time for individual preparation, although some of this time was used for team planning and organization

SUMMARY AND CONCLUSIONS

The over-all objective of the project was to improve the quality of instruction through a team approach, extending the use of skilled teachers over a large group of pupils, and using the services of non-credentialed aides in lieu of services of regularly certificated teachers. A further objective was to assist in the recruitment of competent people for the teaching profession by employing aides who were potential teacher-education candidates.

The evaluation of the project was a subjective appraisal based primarily on reactions of the participants, observation of team-teaching activities, and a sampling of the activities by means of a one-week time-diary prepared by the team members. It was agreed that the evaluation should

be continuous and that recommendations for changes to improve the program should be made whenever possible. Observation of team teaching by the project coordinator, the evaluator, and the school principals led to several modifications of the program as it progressed:

1. Redefinition and clarification of the duties and responsibilities of the aides
2. A minor change in facilities and some additional equipment for one team in order to provide better instruction in small groups
3. A change in schedule for one team at the beginning of the second semester to permit more effective team planning and teaching.
4. Increased attention to organization of class activities which would provide more help for the low-ability and high-ability pupils

Participation in the workshops, held periodically during the year, was very helpful in carrying out the continuous appraisal of the program. It provided an opportunity to learn about the team activities, aspects of the program which were causing difficulties, and favorable reactions to the program. At the same time, it afforded the opportunity to make suggestions for improving the program.

Recruitment of teachers. The aides were college students who were considering entering the teaching profession. In every case, they were enthusiastic about their experience and indicated that there was no doubt in their minds that a teaching career was what they wanted. The favorable reaction of the aides suggests that this activity is a good exploratory experience leading to enthusiasm for teaching, and might, therefore, be a means of recruiting teachers.

Improvement of quality of instruction. No objective measuring instruments were used to determine the extent to which the quality of instruction was improved. The following summary is based on the opinions of the participants and their report of teaching activities during a one-week period:

1. The increased size of the classes taught by the teams provided an opportunity for a larger group of pupils to hear lectures, see demonstrations, and be led in discussions by skilled teachers.
2. In those teams where there were two credentialed teachers, it was possible for the teachers to capitalize on their special competencies in making presentations to the class.
3. The aides relieved the teachers of many routine and clerical responsibilities which provided additional time for planning, preparation, and instruction.
4. The aides supervised an activity for part of the class while the credentialed teachers conducted special activities with a smaller group. The services of the aide made it unnecessary for the teacher to divide his attention between instruction of the small group and supervision of the rest of the class.
5. The teachers and aides together were able to provide more individual help for pupils during supervised activities and supervised study than would be possible by a single teacher.

6. There was some indication that fewer disciplinary problems occurred in the team classes, even though the groups were larger and sometimes facilities were somewhat less than adequate. Whether this was due to the added supervision provided by the aides or a higher level of motivation of pupils because of more effective teaching was not explored in this study.

7. Working as a team stimulated teachers to do a more effective job of teaching, not only in the team classes; but in other classes as well—they felt they had grown professionally because of this experience.

8. Even with larger classes, the teachers felt they had covered at least as much material as they did when they taught the same subject to smaller classes. Many felt they had covered the material more thoroughly and had provided more adequately for individual differences of pupils.

Problems encountered. Some of the problems experienced by the teams early in the year were overcome as they gained experience in team teaching. There were some aspects of the program which the teachers felt tended to interfere with high quality instruction:

1. Adequate facilities for meeting large groups were not always available; most school plants have only a few rooms which can accommodate large classes.

2. With large classes, it was more difficult to know each pupil well.

3. Some pupils, especially those who are somewhat dependent and those who are of lower ability, are insecure in a large class and with more than one teacher.

4. Even though the teachers were relieved of many routine and clerical duties, they felt they needed to give extra time for team-teaching because of the demands of organization of team activities and supervision of aides.

5. Not having a common preparation period for all members of the team reduced the efficiency of team planning and interfered with the development of a feeling of working as a team.

We have attempted to present a true report of our progress and our problems. The gains clearly outweigh the losses. The potential appears to be unlimited. San Diego faces with enthusiasm the prospect of a second year in this experiment.

Educational Broadcasting and Staff Utilization in South Bend: An Experiment in Group Guidance

KENNETH W. REBER

THE experimental project is an attempt to determine if part of the group guidance program can be handled effectively through radio broadcasts with a subsequent better utilization of professional staff time. Prior to the establishment of the experimental program in 1958, students received occupational, educational, personal, and social information in classes taught by the grade-level counselors. Each student attended a group guidance class one period a week during the "B" semesters. This was satisfactory except that much of the counselors' time was taken up in preparing for and teaching group guidance classes, leaving them reduced time for individual counseling. In one high school the group guidance instruction was handled by the home-room teachers under the supervision of the counselors. This, too, was satisfactory except that trained guidance personnel handled but a small part of the actual instruction. In addition at the ninth-grade level, part of the instruction in group guidance was carried out in community civics, a required course. The total group guidance program extended beyond these formalized aspects, including career clinics, special assemblies, co-curricular activities, and interest sessions.

HIGH SCHOOLS ADOPT NEW TIME SCHEDULE

In the experimental project no effort is made to change these informal aspects of the group guidance program. The formal organizational pattern, however, has been modified. The students now receive approximately half of their instruction in group guidance by radio. Last year, the home-room periods ran twenty minutes except on Tuesdays when the half-hour guidance programs were broadcast. Club activities, assemblies, and other activities often projected into first-hour class time. Thus, the schools ran on a shortened class schedule, or "club schedule" as it is popularly known, several mornings each week. The guidance programs added to the problem. This year, the board of education approved a new time schedule for the high schools. Students come to school fifteen

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minutes earlier, 8:05 A.M., and go directly to their first-hour classes. After the first period, they attend a half-hour home-room session. Each Tuesday morning has been set aside in the home rooms for group guidance instruction and activities. During this time students listen to the radio broadcasts approximately half of the mornings. The other mornings are taken up with group guidance activities formulated by the counselors and implemented by the home-room teachers. Special programs are planned for each grade level.

BROADCASTS PREPARED BY GUIDANCE SPECIALISTS

Under the new plan, each broadcast is prepared by trained guidance workers with the help of numerous consultants and resource personnel. This results in an enriched guidance program for the students. In addition, the grade-level counselors need to prepare group guidance activities only for those days when no broadcasts are scheduled, leaving them more time for individual counseling with students, and home-room teachers no longer have a major responsibility for developing group guidance lessons and materials. Before each broadcast, the students receive a newsletter telling them about the program. Tests and worksheets accompany most of the broadcasts. Question and suggestion boxes have been placed in each school, and students are encouraged to send in their questions and comments. The questions are answered in later broadcasts or are used for discussion purposes on days when no broadcasts are scheduled.

CONTROL GROUP USED

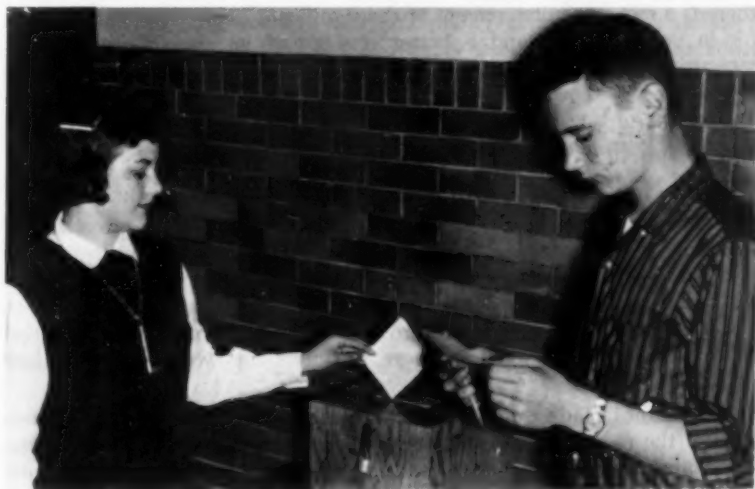
All together, 4200 students in grades nine, ten, and eleven take part in the experimental project. Another 600 tenth- and eleventh-grade students at one high school attend regular classes in group guidance taught by grade-level counselors. They spend an equivalent amount of time in such classes as those in the experimental project and cover much the same material. These 600 students serve as a control group. Students from the control group will be paired with students in the experimental group and test results will be analyzed.

A NEW FOCUS IN GUIDANCE

Often, it appears, there are plus and minus values that accrue in an experimental project that are not related directly to the purpose of the study. This is true in South Bend. For instance, although we have not tried to evaluate this critically, it appears that students have developed better note taking and listening skills as a result of the broadcasts. Also, they appear to have a better understanding and appreciation of the special services schools provide, particularly counseling and guidance. The fact that this is an experimental project supported by a national agency helped to focus attention upon it. Administrators and staff personnel appear to be more guidance minded. New counseling rooms have been constructed, the counseling staff has been increased, several class-



The tape recorder takes down the student discussion of a guidance program in South Bend, Indiana. Ken Reber, director of the group guidance experiment, and three twelfth-grade students discuss an eleventh-grade program called "On Being a Senior."



In conducting a guidance program by radio, it is important to know what questions are left unanswered in the students' minds. A question and suggestion box near the home rooms helps in getting the student viewpoint.—South Bend, Indiana, experimental project in group guidance by radio.

rooms have received acoustical treatment, and central sound systems have been improved. These are not necessarily a direct result of the experimental project although the project appears to have had some effect.

The project has other ramifications. The effort to produce radio broadcasts for multiple school use and the adherence to a broadcast schedule of necessity required more uniformity in the four high-schools' schedules and group guidance programs. This was studied carefully to make sure the project was not the determinant in these areas, but that the new schedule and new group guidance program would be advantageous to the students.

The closer coordination of guidance activities in the four high schools helps to focus attention upon philosophical aspects of guidance, upon the need for more precise theoretical positions in the area of guidance, and upon a more precise orientation of guidance services to the total school program.

These foregoing developments or by-products are in addition to those associated with the mechanics of educational broadcasting and the techniques of production. Although there is still much flexibility in the group guidance program in the four high schools, some formalizing of the program makes it easier to define, articulate, and, if necessary, defend. Guidance itself is differentiated from instruction theoretically and to some extent functionally, and it is easier to evaluate its results. In other words, there is a more definite concept of the significant behavior we are looking for in young people and a better concept of its characteristics. This measurement is in terms of student behavior, as nearly as short-range evaluations can be considered valid measurements. However, we are aware, too, of the many intangibles involved in the measurement of attitudes and personality development.

EVALUATIONS SHOW GENERAL EFFECTIVENESS OF RADIO BROADCASTS

Although it is difficult to measure, it appears that this method of teaching group guidance information results in a better utilization of staff time. Counselors have more time for individual counseling, untrained personnel are no longer required to teach group guidance units, resource persons strengthen the program. In other words, it appears that more people are engaged in more activities for which they are best qualified.

Evaluations made during the last year establish the general effectiveness of the radio method. Home-room teachers and counselors said students appeared to be attentive and interested most of the time. Seventy-five per cent of the students said the programs had been of interest and help. The techniques used in the radio presentations were said by almost all teachers and students to be effective. The major complaint was poor reception in some classrooms.

PRINTED MATERIALS USED IN CONJUNCTION WITH BROADCASTS

Technically, there appears to be value in combining worksheets, tests, and other printed materials with the actual broadcasts. The worksheets provide a break in the oral presentation and help to sustain attentiveness. During or following a broadcast, students are often given short tests. An analysis of the tests taken last year shows that retention of the material presented is about the same as in the ordinary classroom method.

RESOURCE PERSONS ENRICH PROGRAM

Another technical device was the use of resource persons, those in the community with special skills or knowledge which is of interest to high-school students. For example, many of our students were asking just what employers want to know when one applies for a job. We asked Miss Patricia L. Pruden, personnel director at Studebaker-Packard Corporation to tell them exactly what they can expect. The use of resource persons is greatly expanded with the use of radio since the resource persons can reach all students in one appearance. It is almost out of the question to ask them to appear before each home room under the old group guidance program.

GROUP GUIDANCE SERVES AS BASE FOR INDIVIDUAL COUNSELING

One of the major, anticipated advantages of the radio program is the opportunity to develop well thought-out and integrated presentations of material by trained guidance personnel. Some flexibility, however, is maintained in programming and content. This flexibility is deliberate since the program deviates rather sharply from established procedures. The radio programs, with their novelty and attendant publicity, appear to give students a greater awareness of the counseling program and encourages them to make individual appointments with counselors. Group programs serve as a base for individual counseling. The information presented is of general interest to all students. The student is then encouraged to see his own counselor and work out the application of this general information to his individual needs and problems. It is not anticipated that attention and interest will decrease as the novelty of the experiment wears off. In fact, as the radio broadcasts become an accepted part of the group guidance program, attention and interest appear to increase. Part of this may be a result of a more refined program as staff personnel gain added experience in the use of the radio medium.



An eighth-grade student in a ninth-grade science class in the Urbana (Illinois) Junior High School

The Illinois Staff Utilization Studies

FRED P. BARNES

DURING the school year 1958-59, sixteen Illinois high schools co-operated in a state-wide staff utilization studies project under the joint sponsorship of the Illinois Association of Secondary-School Principals, the Commission on the Experimental Study of the Utilization of the Staff in the Secondary School, and the Illinois Curriculum Program. The Illinois studies were dubbed the "Illinois Staff Utilization Studies" to indicate their state-wide nature and give them a sense of cohesiveness. The sixteen high schools accounted for more than thirty-five separate studies which are reported elsewhere in this issue. Included in the reports are accounts of investigations into team teaching, large-group instruction, independent study skills, various methods for more efficient instruction in basic subjects, language laboratories, non-certificated teacher assistants, programs for the gifted, guidance practices, use of films and electronic aids to teaching, and teacher workshops. The wide range of these studies and the variability of the several high schools scattered over a large state (fourth in rank among the states in population) created sizeable problems of coordination, communication, and cooperation. How these problems were handled is the central subject of this article.

When the Curriculum Committee of the Illinois Association of Secondary-School Principals first considered making a request of the Commission for the approval of a state-wide project, it was recognized that some kind of over-all organization would be needed for administrative and consultative purposes. Accordingly, the Illinois Curriculum Program officers were invited to consider the possibility of their including the staff utilization studies with their many other curriculum projects. Subsequently, the Illinois Curriculum Program's Steering Committee (composed of representatives from more than fifty lay and professional organizations) approved the collaboration and expressed keen interest in the kind of experimentation implied. Following this action, in November 1957, the Illinois Curriculum Program staff members actively helped plan, conduct, and evaluate the first meeting of representatives from more than forty Illinois high schools interested in considering staff utilization studies.

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THE ILLINOIS CURRICULUM PROGRAM

It may be well at this point to digress for a moment and introduce a short description of the Illinois Curriculum Program (hereinafter, I.C.P.) in order to promote a more complete understanding of how the Illinois Staff Utilization Studies (hereinafter, I.S.U.S.) were welded into a single state-wide project. It was inescapable that the established and proved procedures of the I.C.P. would have an influence on the staff utilization studies. And of course it was convenient for the I.S.U.S. to have access to the ready-made channels of communication opened by the I.C.P.

The Illinois Curriculum Program was established in 1947 as a branch of the office of the state superintendent of public instruction. However, the program was officed at the University of Illinois to emphasize its voluntary nature and to secure consultative assistance. The I.C.P. came about largely through the efforts of the Illinois Association of Secondary-School Principals and the then Superintendent of Public Instruction Vernon L. Nickell.

Almost from its inception the I.C.P. focused its efforts on studies of school problems at the local level. Of equal importance, the I.C.P. has constantly been engaged in developing ways for the people directly concerned at the local level to engage actively in making studies that have meaning for them. To achieve these aims it was necessary to introduce training-centered conferences and workshops at the state-wide level. In so doing the I.C.P. amassed a considerable amount of knowledge concerning the in-service training of school people to do particular self-selected tasks. In addition techniques of consultative services were perfected and channels of communication were opened. Illinois school people have become quite accustomed to working cooperatively on common enterprises. So it was quite natural for the I.C.P. to be thought of as the coordinating center for the I.S.U.S.

Of particular pertinence for the high-school personnel involved in the staff utilization studies was the I.C.P.'s development, since 1956, of training methods in practitioner research for school people. Since good staff utilization studies would depend on the quality of research designs and research methods to be employed in the project it seemed advisable to pay early attention to these matters. Consequently a research consultant was employed to work exclusively with the sixteen I.S.U.S. schools, and the I.C.P. director and staff began plans to make available for I.S.U.S. personnel training seminars in basic research methods.

THE FIRST TRAINING-CENTERED RESEARCH SEMINAR

Because it was evident that the patterns of the staff utilization experiments would be influenced by the research designs selected to analyze and evaluate obtained results, a seminar meeting was scheduled early in the initial planning phase of the project. This seminar was held at the University of Illinois on June 4 and 5, 1958, and enrolled the administra-



Participants assemble for a general session.



Discussions continued at mealtimes.

tors and teachers concerned with the proposed staff utilization studies in the sixteen high schools.

The seminar was devoted to three broad tasks: (1) the specific identification of design elements in each of the thirty-five studies proposed by the sixteen high schools, (2) experience with actually using statistical tests applicable to classroom research projects, and (3) the using of various research methods which seemed to have promise for efficient conduct of the studies. The seminar was task-oriented with the focus on skill-development of the participants.

To achieve these goals lecturing was held to a minimum and the "dry-run" device, which was invented and developed by the Illinois Curriculum Program, was used. This device was developed as a useful way to operate a short-term (two- or three-day) seminar for the training of practitioner-researchers. It emphasizes practice in research processes conducted in a threat-free and safe environment where mistakes are harmless. It places stress on *whole-person* learning where participants can feel, act, and think the learning experience rather than just listen or talk about what they are learning. The participants use themselves as a research population and employ synthetic, but real enough, research problems which interest them. They identify a problem, state the hypotheses, select a statistical test and level of significance to be employed, collect the data, and test the hypotheses by means of the devices chosen. All this is done in a "not-playing-for-keeps" environment where freedom to admit one's own lacks, and then learn, are prized.

The seminar resulted in the staff members of all schools in the project knowing in some detail each of the proposed thirty-five experimental studies. They also knew something of the research designs and procedures that might be applicable to each study. In addition the administrators and teachers concerned had experienced some beginning steps in research and statistical methodology and were that much better prepared to work with the research consultant after their return home. This was a considerable gain because most of the administrators and teachers in the project, as might be expected, were about to enter their first experience with systematic research methods and statistics.

Immediately following the seminar a complete report on decisions and findings was duplicated and mailed to the sixteen schools. The groundwork had been accomplished and the schools were on their way. Within five months most of the schools had made substantial accomplishments in beginning their studies. Results through November 1958 were reported in *THE BULLETIN* of the National Association of Secondary-School Principals, 42: January 1959.

MORE RESEARCH SEMINARS

During its work with the I.S.U.S. project, the Illinois Curriculum Program planned and conducted a series of three identical seminars held at Pere Marquette State Park Lodge in November 1958, and January and

February 1959. These three-day seminars were open to school people from all levels, members of boards of education, and interested citizens. Applications were honored on a "first come, first served" basis and 253 applications were accepted from a total of more than 400 submitted. Each seminar was restricted to an enrollment of eighty persons including twelve staff members recruited from public school systems, public state universities, and the office of the state superintendent of public instruction.

The I.S.U.S. schools were encouraged to send members of their staffs for further training in research operations. Reservations were held open for them and more than forty administrators and teachers from the sixteen high schools attended. This was seen as an excellent opportunity to continue and deepen the beginning steps taken at the first I.S.U.S. seminar in June 1958. In addition it was recognized as distinctly probable that a general, state-wide interest in systematic experimentation would encourage and strengthen the I.S.U.S. projects in particular while it opened the way toward a general research approach to curriculum problems for other schools in the State.

The seminar participants were divided into four "research team" groups of seventeen plus three staff members each. The "dry run" idea was used with each of the four groups identifying and completing two research projects of its own. Each project started with the locating of a "researchable" problem, selecting a design fitted to the problem, gathering relevant data, analyzing the data through inferential statistical tests, selecting a level of acceptable significance, and deciding on the findings. After the completion of each project, the groups reported their work at a general session for a critique and discussion of the methods they had employed.

The tests of statistical inference were all taken from nonparametric statistics which allow research studies on very small groups, are distribution free, and are much simpler to apply and understand than are the usual parametric tests. The tests employed were the *Mann-Whitney U Test*, the *Sign Test*, the *Spearman Rank Correlation Coefficient Test*, and the *Chi-Square Test of Significance*. The use of these tests and information on research methods was explained through reference to a bulletin furnished to each participant for use before and during the seminars.¹

The research seminars were carefully measured. Upon registration for a seminar and prior to attendance, each participant was mailed test forms designed to measure cognitive knowledge concerning research methodology and attitudes toward the production of research. On the last day of each seminar, after the training sessions, these tests were again administered. The research hypothesis of the I.C.P. trainers was that there would be a significant gain in knowledge of research techniques and a significant change in attitudes in the direction of teacher production as opposed to teacher consumption of research. The null hypothesis was that there

¹ Barnes, Fred P. *Practical Research Processes: A Guidebook in Research Methods for Practitioners in Education*. Springfield: Illinois Curriculum Program, Office of the Superintendent of Public Instruction, August 1958. Pp. 123.

would be an equal number of gains and losses, both in scores on the knowledge tests and in scores on the attitude scale. Using a pretest and post-test design, one of the distribution-free inferential tests used by participants in the seminars was employed to test the significance of the findings. The scores on the pretests and post-tests were paired for each participant in order to determine his gain (+), loss (-), or no change (0). The *Sign Test* was used to analyze the data and indicated that gains in knowledge were statistically significant at the .01 level. Thus the null hypothesis was rejected and the research hypothesis accepted. The research seminars did, indeed, increase the participants' knowledge of research methodology to a statistically significant degree. The attitude inventories did not reveal scores that were significant at less than the .25 level. However, the weight of change was in the direction of gain in producer attitudes. This may have been due to a preponderance of producer attitudes among the participants before the seminars took place.

The various seminar sessions were rated by the participants eight separate times on a nine-point scale which ranged from 1 = "very dissatisfied" to 9 = "very satisfied." The mean summary ratings, from all three seminars, placed the participants' evaluation at a point somewhat better than "quite satisfied." The Illinois Curriculum Program had successfully introduced a research approach to curriculum improvement and the I.S.U.S. schools had made additional training in research methodology available to their staff members. In the meantime the research consultant made visits to the sixteen schools and assisted in the solution of problems related to the specific conditions to be found in each different situation.

FOUR MAJOR PATTERNS FOUND IN STAFF STUDIES

Of course the final question is, "Did all this training have an influence on the studies performed in the sixteen high schools?" Obviously it would not be possible to trace the full impact of the training on the studies. How much the thinking of the administrators and teachers was influenced would be difficult to estimate. The seminars were intended to help the participants become more sensitive to the shaping of "researchable" questions, to a feeling for appropriate design, to an insistence on convincing data, and to an experimental attitude. Whether these goals of the training sessions are reflected in the studies was not directly explored and determined. This question would have led to a highly important and fascinating extension of the original study on training in research operation had time and opportunity permitted. However, the final reports for the year 1958-59 from the sixteen schools permit the making of some related observations concerning the major approaches which were taken to the staff utilization studies.

Not all of the schools clearly defined and systematically analyzed their studies. There was no general level of accomplishment that could be ascribed to all the schools. Nor did all the schools choose to follow similar paths in performing the studies. When the sixteen schools began



Research group ponders a statistical problem.



Research problems are debated during free time.

the project, there were wide differences among them and the differences were no less wide more than twelve months later. Probably this is as it should be for uniformity and similarity generally are anathema to an experimental attitude. As close as we can get to the making of generalizations about the work of the sixteen schools is to identify the four major ways they went about performing their studies:

1. The first approach involved a high-school's staff members starting without prior training or experience in research and statistics; and then learning the necessary techniques "on their feet" as they proceeded. Undoubtedly the reports in this issue that use nonparametric statistical tests or nine-point rating scales for opinion studies belong in this group for these are techniques learned at the seminars.

2. The second approach involved the good fortune of having faculty members already on the staff of a high school with considerable training and experience in research methods and statistics. The reports that make use of the t test (or "Student's" Distribution) belong in this group. Chi-Square (a nonparametric test) also was used by some faculty members with prior knowledge. Additional parametric tests cited in the reports did not originate with the training seminars.

3. A third group of schools expressed their findings in terms of logical-verbal inferences and/or descriptive (not inferential) statistics. The high schools in this group used the knowledge that staff members already had to make intuitive and shrewd decisions. One mark of these studies is that the reports are generally longer than the others due to the more difficult task of making verbal reports.

4. The fourth approach involved employing a research specialist from outside the school system to analyze the project data statistically and arrive at decisions and conclusions. Such reports make use of parametric tests like the analysis of variance and analysis of covariance. In these schools the experimental project was determined and the data collected by the local staff, but it was analyzed for meaning by an outside specialist or specialists.

It would be difficult to establish that any one of these four approaches is superior to the others. However it is easy to develop a fondness for the administrators and teachers who started with virtually no knowledge and experience in research studies and ended the year having learned to work with experimental designs and to employ certain inferential statistical techniques.

Certainly all those involved in the I.S.U.S. added to their own knowledge and experienced the fascination that becomes a part of experimental research. One of the best testimonies that in fact this did happen is to be found in the accomplished intention of most of the sixteen schools to continue their studies, or launch new ones in 1959-60.

**Fourteen Staff Utilization Studies in Township
High School District 214, Arlington Heights,
Illinois**

VALJEAN CASHEN
E. EUGENE OLIVER
HAROLD L. SLICHENMYER
ALVIN L. KULIEKE

A RAPIDLY growing school population coupled with increasing demands upon the entire staff has prompted us to embark upon a variety of research projects in order to provide our school system with the best possible educational advantages. It was not anticipated that we would solve all of our educational ills. We were searching, and will continue to search, for better educational procedures. Although only approximately ten per cent of the staffs of both the Arlington and Prospect High Schools were actively engaged in the research, the enthusiasm for the various research projects was evidenced by the interest and cooperation shown by the entire staffs. Subsequent pages give a detailed report of these 14 research projects.

MOBILE AUDIO LABORATORY

The purpose of the mobile laboratory developed for the foreign language department during the past year was to attempt to uncover some of the ways in which audio material could be used to augment the facilities of the language department without considerable expense.

The Groups Involved. All levels of all languages were involved in the use of audio materials. It was generally easier to obtain materials for French and Spanish than for German and Russian.

Procedures. In every case, the procedure used was invented by the teacher himself or the student in some cases, and an evaluation followed. Where the objective was to broaden the students' understanding of a new voice, the procedure was simply one of playing the tape and interrupting at reasonable intervals to allow them to repeat what was said in mimicking the speaker as closely as possible. In cases where the objective was to

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broaden retention span, a phrase was played and repeated with the addition of a few words until retention was doubled and redoubled. After a few months of this kind of exercise, the time required for taking dictation was cut to a fraction of the time formerly required.

Where teacher supervision of the writing of a dictation was desirable to watch for misinterpretation of sounds (faults in adjective and verb agreement, *etc.*) the teacher would prepare the dictation ahead of time allowing time between phrases for writing and then simply tour the class, observing the work progressing.

Results. The results of this project were determined empirically. They were:

1. Students using commercially obtainable language records over a period of a few weeks had quicker command of common useful expressions and retained them longer.
2. The complaints about speaking speed diminished noticeably.
3. More individualized attention was possible during periods where faster students could be given taped exercises to do while the teacher attended to other students or problems.
4. Pronunciation improved remarkably where audio exercises were programmed frequently.
5. Willingness to converse in the language seemed to be generally greater.
6. A lower incidence of serious errors in dictations was noticed.
7. Compositions showed a keener awareness of the syntax of the foreign language.
8. Comprehension of new material was increasingly quicker as the exercises continued.

Reaction from thirteen teachers was: (1) enthusiastic in three cases; (2) favorable in three cases; (3) satisfactory in two cases; and (4) undetermined in five. Among those teachers who withheld comment in favor of the use of audio materials, it was obvious in discussing it informally that they were baffled by equipment. One expressed fear of embarrassment before the class if she were to break the tape. Another was unwilling to experiment on his own but stated a desire to have a plan of procedure given him to follow. Teachers who actively used audio materials were quite ready to admit that, once a program and routine for use are established, there will be a significant upgrading in the quality of language teaching in the same length of time.

Most students were generally quite enthusiastic about the system, the material, the challenge each exercise offered, the welcomed change from routine, and the obvious progress they were making "understanding a real Frenchman."

Future plans are to increase laboratory facilities to accommodate thirty-five students at stationary positions and to require some minimum number of hours of attendance per month of all students for the purpose of assimilating more general use of expressions and idioms and to perfect pronunciation.

STUDENT AIDES IN CHEMISTRY

Selected students have been used as chemistry laboratory assistants. Because these students have already graduated from our chemistry course, they can be delegated to many duties. The assistants set up lab and demonstration materials and assist in demonstrations before the class. They assist in the lab exercises, answering questions, giving other individual assistance, and help with the cleaning of the laboratory equipment after the experiments. They are effective because they share information at an almost equal age level. Grading of objective tests and daily papers where personal judgment is held to a minimum is a part of the day of the assistants. The extent of their participation and responsibility depends entirely upon their individual achievement and reliability.

Project Objectives. This project was conducted with several objectives in mind. These were: (1) to stimulate an interest in the students in science teaching, (2) to provide opportunities for additional academic experience through laboratory assistance and individual projects the students might wish to pursue, (3) to encourage a sense of responsibility and esteem toward science, and (4) to relieve the teacher of some of the routine laboratory responsibilities so that more time could be devoted to individual differences.

Project Beginning. Laboratory assistants are selected in a manner which should be another educational experience for the student. It is first announced that a position as laboratory assistant is to be filled by some interested and qualified person. Letters of application are then invited. All letters are then carefully studied.

The student must have successfully completed a course in chemistry. The student must have an active interest in science, especially chemistry. The student is selected for his or her potential ability and desire for occupations in the science field, preferably science teaching. Participants are selected for this program through their letters of application and then through personal invitation.

Findings and Evaluations. The findings of this study are based on empirical evidence. The selection of participants in the project leaves much to be desired. Inasmuch as the students we desire to have in the program are the "top" students and are, therefore, involved in an accelerated curriculum, we are often forced to accept a "second" rate laboratory assistant. It often means that the participant can only report for work on certain days. This curtails the effectiveness of the program. Because we cannot engage the "top" student, we have to be content with students who do not always work with adequate techniques and precision.

I do not feel that the classes involved were aided very much by way of this project. The project did greatly promote and solidify the future plans of the participants in the field of science education. Enough "top" students were in the program to convince the teacher that this project could revolutionize the pattern of achievement in the classroom. The

laboratory assistants enjoy their work and are extremely desirous to do and learn. The classes accept the assistants and appreciate the aid given.

Future Plans. This program will continue but with certain changes. Efforts will be directed toward the selection of "top" students to participate in this project; it may mean that fewer laboratory assistants will be used.

THE FUSION OF ENGLISH II AND LATIN II

Can English II and Latin II, when combined and fused, promote greater learning effectiveness than when individually taught as separate courses? In analyzing the combination of English II with Latin II, the integration of grammar, vocabulary, and comprehension in the two areas presented distinct and specific problems. These problems pertained to areas of mutual identification, coordination, and reinforcement. When meaningful areas of English II and Latin II had been merged into a flexible course of study, it was felt that an assumption concerning the experimental course could be tested. After the five basic English units had been developed, coalesced, and extended to comparable Latin units, it was accordingly possible to state such an assumption.

It was decided that twenty-one students of "average" ability would participate in this experimental study under a single teacher. It was considered feasible that this could be tested with an "after" phase in preference to a "before-after" design. Another English II class of "average" ability was selected to participate in the "after" phase to determine whether there had been gain, loss, or no change as a result of this new inquiry in the improvement of the language skills of the participants in the experimental study.

The experimental group and the control (contrast) group were given the *Cooperative English Test*.

TABLE 1

	<i>N</i>	<i>σ</i>	<i>M</i>	<i>t</i>	<i>Sig.</i>
Experimental	21	12.54	281.04	3.86	.01
Contrast	27	7.08	225.37		

Table 1 shows that the experimental study was significant on the one per cent level. Therefore, there was significant improvement (change) in the language skills of the experimental group.

The experimental population tended to show notable alteration in relation to the language skills of the experimental research process.

Exhaustive readings of various objective Latin tests indicated that they would not yield any normative values to the observation of the Latin skills of the experimental group. For that reason, teacher-made tests were applied to determine whether there had been any appreciable increases in the areas of Latin grammar, vocabulary, and reading comprehension of

the experimental group. Because of the subjective element of these pre-test and post-test results, they have not been included in this report. It seems that one of the great difficulties in any treatment of language that seeks to be scientifically logical is the closeness of the data to the critical observer.

Conclusions. The following conclusions seem possible:

1. The experimental population demonstrated greater heterogeneity than the control group.
2. The experimental group showed definite tendencies of improvement in their reading comprehension skills.
3. As a result of this experimental persuasion, there was illustrated that each student could work more effectively up to the level of his ability.
4. The experimental class showed greater tendencies that their curricular needs in English II and Latin II could be met and advanced by this experimental instrument.
5. The experimental population tended to demonstrate improved alteration in their English language skills as the size of vocabulary was progressively increasing due to the semantic stress of Latin and Greek roots to English vocabulary.

Implications of the Experimental Study. This modern course uniquely has shown that language, whether ancient or modern, may be described and implemented in three different ways: (1) as a series of physical events in sequence; (2) analytically, as separate and distinguishable units; and (3) semantically. It is believed that this experimental course has illustrated that the first is the concern of phonetics, the second of linguistics, and the third of semantics.

RELATIONSHIP OF GRADES EARNED IN HIGH-SCHOOL SUBJECTS TO OVER-ALL ACADEMIC SUCCESS IN COLLEGE THE FIRST GRADE PERIOD

The problem of helping high-school students select a college for their future educational plans has long been one of great concern to the high-school teachers and counselors. The need for better predictive means is a problem of each high school, unique and different from any other high school. Therefore, this study was started for the specific purpose of giving the staff a look at the relationship of high-school grades, by subject, to the over-all success of our own students after they were in college.

The first two years of a four-year study have been completed and the results studied statistically to determine which subject or subjects are the best predictors of college success. The data used in this study were grades made in high school and grades made in the first year of college by graduates of the classes of 1956 and 1957 of Arlington High School. From the 307 graduates of the 1956 class, 181 enrolled in 72 different colleges. From the 411 graduates of the 1957 class, 242 enrolled in 80 different colleges. The study included 124 students from the class of 1956 and 136 from the class of 1957 with complete data of college grades and high-school grades in the five different academic areas: foreign language, mathematics, English, science, and social studies.

TABLE 2.—Class of 1956

<i>Variables</i>	<i>N</i>	<i>r</i>
English IV & College English.....	121	.52
English IV & College GPA*.....	121	.49
Am. History & College GPA.....	97	.30
High-School Over-all GPA & College GPA.....	154	.82

*Grade Point Average

TABLE 3.—Class of 1957

<i>Variables</i>	<i>N</i>	<i>r</i>
High-School English GPA & College GPA.....	136	.54
High-School Social Science & College GPA.....	136	.56
High-School Science GPA & College GPA.....	136	.49
High-School Math GPA & College GPA.....	133	.55
High-School Foreign Language GPA & College GPA.....	127	.46
High-School Over-all GPA & College GPA.....	136	.35

This study is to be continued with the classes of 1958 and 1959—classes of 450 and 565 students respectively. At the completion of the first year of college for the class of 1959, we plan to use regression equations to enable us to determine better the best predictors of college success based upon high-school grades.

These correlations for the class of 1956 (Table 2) show the best predictor of total college grades to be total high-school grade-point average (G.P.A.). The correlations for the class of 1957 (Table 3) are not so clear cut. High-school GPA in English, social science, and mathematics appear to be equally good predictors of success in college. Also, in contrast to the class of 1956, the weakest predictor appears to be total GPA for the class of 1957.

TEAM APPROACH TO THE TEACHING OF CORE

The problem which this experiment attempted to solve was whether or not the achievements of core students could be increased when two teachers with different backgrounds and techniques worked with the same class simultaneously. (Core is defined as a combination of English and social studies in a two-hour block of time.)

The study included a class of 59 students who met for a two-hour period five days a week. Before- and after-testing in both English and social science were done. Another core class of twenty-four was "before and after" tested. Results (refer to tables) were not significant in reference to student accomplishments. The achievement of both groups of students was basically the same. The advantages of this type of class were:

1. More actual class time was available to make preparations and to make better preparations than in a conventional core class.

2. There is the opportunity to do other so-called paper work, such as grading tests, tabulation, *etc.*

3. One teacher could note various points. These were used later in a brief but valuable discussion and cooperative planning.

4. The size and makeup of the class enabled the teachers to divide the group into smaller groups for various purposes: individual and small group work, makeup work for absentees, remedial work, *etc.* This, however, did not work out as well as anticipated.

5. Time was available for individual conferences and closer observation of student reaction and behavior.

The disadvantages are:

1. It was difficult to establish a great degree of rapport with the class.

2. Dividing the class into various groups and seating arrangements for reports, projects, reference work, and associated activities failed to resolve this problem to any extent.

3. There was a need for more complete sets of reference materials in addition to what was available.

4. There was difficulty in correlating the work of all the members of the class.

5. The organization of materials—the actual distribution and collection—was a sore point because of the time element.

6. Seating arrangements could not be made practical for lectures, discussions, films, and other related activities. Some students could not see or hear from various points in the room.

The results of the attitude inventories indicated that the students did not object to being members of the experiment. As a matter of fact, most of the students responded in such way to show their satisfaction with the course.

TABLE 4

	<i>Social Science</i>		<i>English</i>	
	<i>Pre</i>	<i>Post</i>	<i>Pre</i>	<i>Post</i>
Mean A.	72.19	80.50	8.50	9.20
Mean B*.	78.45	87.45	8.20	8.80
A.	15.41	16.66	162.87	93.28
B*.	14.36	29.97	81.98	88.27

*B—Conventional Class

Table 4 indicates that no significant difference was shown between the experimental class and the conventional class. However, it does show that, to begin with, the conventional class was more homogeneous than the experimental group.

THE USE OF NON-CERTIFICATED PERSONNEL AS ASSISTANT LIBRARIANS

The purpose of the study was to determine whether a non-certificated person could become an efficient assistant librarian if she is given in-

struction by the certificated school librarian in certain areas of library work. The assistant's job was defined as follows:

1. Assist with reference, circulation, and reading guidance activities of the library
2. Supervise students in the library
3. Assume responsibility for supervision of certain areas of student librarians' activities
4. Aid in processing of library materials
5. Assist in book selection
6. Assist with instruction in the use of the library

To get her ready for her job, we developed the following training program for the assistant:

1. Familiarization with the school system
2. Familiarization with library routines—circulation, filing, cataloging, book processing, *etc.*
3. Study young people, emphasizing their reading interests, needs, and abilities
4. Special study of reference and materials
5. Familiarization with library materials for young people

The assistant employed during the summer began work three weeks before school opened. The first two weeks were spent in learning library routines, reading and studying about books, discussing books and students with the librarian, becoming familiar with the school and the library, *etc.* The third week was the week of the faculty workshop; the assistant attended sessions designed to familiarize new teachers with the system and its rules.

Other instruction was given on the spot in spare minutes as a job arose or when the library was closed for examinations, assemblies, *etc.* Our student librarians indicated through informal discussion that we have spent too little time in studying reference books, so we plan to re-do that area next year, along with a study of basic cataloging procedures. The assistant has set up a reading program for herself for the summer to further her knowledge of our books.

In looking back on our program, it is believed that not enough time was devoted to actual instruction. At least one hour per week should be devoted to instruction of the assistant. This hour should be spent alone with the assistant and should be without interruption so that good work-study conditions are possible. The assistant should attend faculty meetings, visit department meetings, and be encouraged to consider herself a member of the faculty more than a member of the clerical staff.

In general, we feel that a non-certificated person can be efficiently and economically educated by a certificated school librarian. A non-certificated assistant is more than capable of handling all circulation work and keeping all statistics. She handled all reading records, overdue notices, *etc.* This has enabled the librarian to catalog a greater number of books than would be possible otherwise, to keep up with professional

reading, to set up a faculty library, to set up listening rooms for student use, to attend meetings, *etc.*

To help in evaluating our program, two surveys were conducted. The general faculty was given a short questionnaire after a discussion of the program and a statement concerning the need for evaluation of the program, not of the individual involved. The questionnaire given to the student librarians was directed at improvement of our library. Both students and faculty felt that the assistant was a welcome addition to the staff. Both groups also felt that another year of training will make her come really close to librarianship. We may conclude, therefore, that the assistant was effective in the eyes of students and faculty. The following advantages to a program involving a non-certificated assistant are:

1. Relieves the librarian of much non-professional work
2. Less expensive to employ a non-certificated assistant
3. Frees a librarian for a school that might not otherwise have one
4. Makes provision for additional library services to faculty and students

Disadvantages to a program involving a non-certificated assistant are:

1. Much time is needed for instruction.
2. The assistant is neither a faculty member nor a member of the clerical staff, so her status is sometimes quite vague.

Recommendations to those beginning such a program include these:

1. Provide time in the day's program for the assistant and the librarian to work together.
2. Choose a mature person with the ability to handle large groups.
3. Establish the assistant as a faculty member.
4. Do not attempt to give too much training too fast.
5. Have a definite course of study for the assistant to follow.
6. Plan carefully exactly what the assistant's duties are.
7. Inform the assistant very definitely about the extent of her responsibilities.
8. Do not be impatient at an apparent lack of progress or understanding.
9. In all facets of the program, proceed slowly.

FOLLOW-UP STUDY OF GRADUATES OF THE 1953, 1955, AND 1958 CLASSES

This study was inaugurated to investigate the reactions of 938 graduates of the classes 1953, 1955, and 1958 to their high-school experiences. During the Christmas vacation period of the school year 1958-59, two experimental questionnaires were sent to a random sample of 100 students of the three classes under consideration. From these results a final questionnaire was devised and sent to the remaining members of the three classes. Each questionnaire contained twenty-eight items concerning: (1) sex, (2) year of graduation, (3) years in attendance at Arlington High School, (4) present residence, (5) marital status, (6) number of children, (7) present occupation, (8) selecting an occupational field, (9) job skills, (10) understanding of citizenship responsibilities, (11) select-

ing a college, (12) preparation for college, (13) understanding of abilities and interests, (14) writing correctly, (15) speaking ability, (16) mathematics, (17) family relations, (18) good study habits, (19) appreciation of art, (20) appreciation of music, (21) understanding science, and (22) health and physical fitness.

The respondents were also asked to list the courses they considered to be the most valuable to them in reference to each category. The remaining six items on the questionnaire related to junior college, participation in cocurricular activities, enrollment in certain specific high-school courses, subjects that were of little or no value, subjects that were of greatest value, and any additional comments that the respondent cared to make.

Of the 938 questionnaires sent, 362 were completed and returned and 52 were unclaimed. The results of the study are interpreted on this basis. Each item on the questionnaire was analyzed by Chi Square and, where this statistical technique was not applicable, the results are given in terms of percentages. Table 5 shows the question category, the Chi Square value, the statistical significance, and the category indicated.

TABLE 5

	<i>X²</i>	<i>Sig.</i>	<i>Category</i>
Selecting an occupational field.....	19.70	.01	Some
Job skills.....	11.80	.01	Some
Understanding of citizenship responsibilities.....	46.13	.01	Some
Selecting a college.....	3.92	No	Some
Preparation for college.....	52.36	.01	Considerable
Understanding of abilities & interests.....	35.59	.01	Some
Writing correctly.....	39.39	.01	Considerable
Speaking ability.....	11.85	.01	Some
Mathematics.....	7.34	.05	Some
Family relations.....	3.34	No	Little
Good study habits.....	7.27	.05	Some
Appreciation of art.....	96.72	.01	Little
Appreciation of music.....	23.85	.01	Little
Understanding of science.....	12.51	.01	Some
Health & physical fitness.....	33.50	.01	Some
Junior college.....	.34	No	Not applicable
Participation in cocurricular activities.....	106.88	.01	Not applicable

It can be clearly seen that on most of the questions there is a very definite trend of opinion. As would be expected most people took the middle of the road. Appreciation of art and music does not reach enough students. Preparation for college and writing correctly being marked "considerable help" and being significant is most encouraging.

Table 6 shows the courses, in order, the respondents felt were the most helpful in each category.

It must be remembered that Table 6 must be interpreted in the light of Table 5. English and Core seem to be the two areas in which the respondents believed they received the most help.

TABLE 6

Category	Course
Selecting an occupational field..	Business (all), English (all), Math (all), Science (all)
Job skills	Business (all), English (all)
Understanding of citizenship responsibilities	American History, Core (all), especially Core IV,* World Affairs
Selecting a college	Guidance Dept. is the only outstanding area mentioned
Preparation for college	English (all), espec. English IV, Mathematics (all)
Understanding your own abilities & interests	Core (all), especially Core IV
Writing correctly	English (all), Core (all)
Speaking ability	English, Core, Speech, all about equal; Eng. has slight edge
Mathematics	Freshman Algebra, Plane Geometry, Math I & II
Family relations	Core IV
Good study habits	English (all) espec. Eng. IV, Core, American History
Appreciation of art	Art (all)
Appreciation of music	Music (all)
Understanding science	Biology, Physical Science, Chemistry
Health & physical fitness	Phys. Ed.; First Aid and Athletics are tied

* Core is a two-hour block of time combination of English and Social Studies. Core IV, however, is a family living course.

When we investigate the courses which the respondents felt were of little or of no value to them, we find no definite trend of responses. Number wise, English seems to have been mentioned more often than any others. This can perhaps be explained by English (Core) being mandatory. Required courses were mentioned much more often than electives. It is interesting to note that more students left this particular section blank or wrote "none" than in any other item on the questionnaire. When we investigate which courses were of the most value, we find English, Core, Business, Mathematics, and American History mentioned most often.

One definite trend does stand out. The respondents were very satisfied with their high-school experiences, felt that they had been more than adequately prepared for their after-high-school careers, and seemed to appreciate the opportunity to inform us of their reactions.

TEAM APPROACH TO WORLD AFFAIRS

The chief problems in teaching the one-semester World Affairs course were the varied backgrounds of the students in ability and in knowledge of social studies, and the lack of adequate study materials for such a broad survey course. In an attempt to meet these problems more adequately, it was decided to experiment with two teachers working with over-size classes, each of which would be approximately 38 in number. It was anticipated that small experimental groups could be selected from the main class for special research and depth study. This, it was thought, would partially solve the problem of diversity in backgrounds and abilities of individual students. Such an experimental group could, con-

ceivably, have contributed immeasurably to the enrichment of the entire course through supplemental information of a type frequently given in teacher lectures. Such experimental groups were established. It was estimated that an evaluation of the team approach to World Affairs might be derived from the use of several types of measurement:

1. Pre- and post-tests on particular areas of study
 - a. Fact tests
 - b. Opinionnaires
2. Open-end questions at the close of the course to elicit student reaction to the experimental method
3. Teacher evaluation of procedures, *etc.*, based on subjective appraisal of groups in comparison with "regular" classes taught previously

The teachers involved realized that such an evaluation would be inconclusive, particularly since there were no standardized measures, national norms, or even pre-determined "proper" attitudes which could be used as guides.

1. Use of small groups for detailed research was curtailed considerably because library facilities at a nearby university were not made available to us.

2. Student activities during the activity period precluded semi-weekly or weekly extended-period meetings of experimental group. This would probably be a continuing problem since better students tend to be involved in extensive activities.

3. Resources in the area of political science, *etc.* were not extensive enough in the local public libraries to warrant consistent use.

4. Many students who were very capable in conducting research and drawing valid conclusions were relatively inept in reporting their findings to the class. Thus, the problem of the broad areas of study was not alleviated through individual or small group research.

5. Means for measuring attitudes in this area were not available nor were the teachers able to develop attitude scales which seemed meaningful. A primary difficulty seemed to be the students' desire to give the answer which they thought the teachers wanted.

6. So far as the attainment of skills is concerned, the larger class makes more difficult *general* discussion of topics under consideration. Those students who feel less secure academically and/or those who are less skilled in speaking tend to enter into discussions less frequently than they would in a class of normal size.

7. A general deterrent to greater success was the fact that there was lack of time during the school day (including the activity period and beyond) for planning and coordination of activities by the two teachers involved.

Also during the course of the year there were some indicators of advantages to be gained from the two teacher approach.

1. One teacher was available for special library research with some students while the other remained in the classroom. There seemed to be considerable gain in the students' knowledge of the use of library facilities for locating materials which, at a cursory glance, may seem unavailable.

2. "Practice runs" on discussions and debates were possible. This has promoted more careful planning, more discriminating selection of materials, and more polished presentation.

3. On occasion, a group of students were taken to the village library for more intensive research in materials not available in the school library. This has proved advantageous for two reasons: A teacher was available for assistance and advice, and community facilities were actively coordinated with those of the school.

4. Respect for the opinions of others and avoidance of black-white judgments could be, and were, more adequately demonstrated by two teachers whose opinions were not always in complete agreement.

5. Two teachers made more effective the use of the "buzz session" technique, since supervision is essential for adequate analysis of small-group discussions and evaluations. This provided better opportunity for expression of ideas to the poorer and/or more reserved students.

It was the consensus of both students and teachers that the disadvantages of mere members in an over-size class tended to offset the advantages of two teachers with a single group of students in World Affairs at Arlington High School.

THE EFFECT OF PHYSICAL ENVIRONMENT UPON STANDARDIZED TEST SCORES

The purpose of this study was to determine if there was any difference in the mean scores of groups tested in extremely large groups and groups tested in groups of approximately thirty. In the past we had been accustomed to testing upwards of 600 students in our group testing programs in one place at one time, namely, the cafeteria. Although we had sufficient proctors many people on the staff felt that this was not good testing philosophy and practice for the staff and the students. In the fall of 1958 the Testing Committee suggested the following outlined plan:

1. Place approximately thirty students in the various rooms throughout the building.
2. Assign one proctor to each room. The same proctor might not be in the same room all day.
3. Students and staff would follow their regular schedule during the split lunch schedule.
4. The director of testing would read the directions to the test over the public address system which would be heard only in those rooms being used for testing.

We have now used this procedure in three standardized group testing programs. We have used the *Illinois High-School State-wide* tests twice and the *Iowa Tests of Educational Development* once. The Illinois State-wide is given during the junior year and the Iowa at the sophomore year.

The data indicate that the new method of testing is not superior to the old. The experimental variable for the classes of 1958 and 1959, the

Illinois High-School State-wide, shows the mean difference to be not significant although the higher mean is in favor of the new method. However, the class of 1959 (the new method) had a statistically higher mean on the *Otis* and on the *Iowa Tests of Educational Development*, while the class of 1958 had a statistically higher mean grade-point average. Considering the same experimental variable for the classes of 1960 (the new method) and 1958 (the old method), we find the differences in means to be statistically significant at the .01 level. However, the mean on the *Otis* is statistically significant in favor of the class of 1960, the mean grade-point average is statistically significant in favor of the class of 1958, and no significance exists for the mean difference on the *Iowa Tests of Educational Development*.

Again using the same experimental variable for the classes of 1960 and 1959 (both new methods), we find no significant difference in the mean scores. The class of 1960 does have a statistically significant difference on the *Otis*, but no significance exists on the other two variables. The most conclusive part of the study seems to be the comparison of the class of 1960 (the old method) and the class of 1961 (the new method) on the results of the *Iowa Tests of Educational Development*. There is no statistical significance in the difference of the means on the *Otis* and the grade-point average. However, when we examine the experimental variable, we find a significant difference at the .05 level in favor of the class of 1960 (the new method).

Although there seems to be no advantage, mean score-wise, in the new method of testing, we plan to continue this method. The difference in mean scores is not enough to affect an individual's placement in our school or to alter future plans after high school. Administratively speaking, this program "works in" better with the routine of the school day. We know, from the results of questionnaires, that the faculty and students both prefer this method to the previous one. Next year, we plan another experiment based upon an entirely different design. We may have an indication to refute the opinions of authorities in the field of guidance that not more than thirty students should be tested at one time in one place.

USE OF TEACHER AIDES IN TEACHING REMEDIAL MATHEMATICS

We are attempting to discover if the use of teacher aides helps to make the teaching of remedial mathematics more effective. At the beginning of the school year 1958-59, two sophomore students, who were chosen at the end of the previous year, were assigned to a freshman remedial mathematics class in lieu of a study hall. These students were selected for their background and understanding of arithmetic. Both were enrolled in fast or accelerated sections in algebra. Our school had only freshmen and sophomore students during the year 1958-59; therefore, only sophomores were available for teacher aides.

The class was divided into three groups according to the type of remedial work that was needed, which was determined by a teacher-made test on the fundamentals of arithmetic. Those who needed more work on addition and subtraction were assigned to one teacher aide; those who needed help on multiplication and division were assigned to the other teacher aide; and the remainder of the class were allowed to continue at its own rate in the textbook under the direction of the classroom teacher.

After a short period of time a retest on the fundamentals was given. Those who failed to pass this test were reassigned to one of the aides and a teacher-made diagnostic test on fractions was given to the remainder. Those who failed this test were assigned to the other aide and the remainder were allowed to continue on their own.

Findings to Date. The use of teacher aides seems to work quite well. The remainder of this section, however, shall be devoted to what should be changed or avoided in the future, so that others who attempt this kind of project will know what to avoid. The changing of the aides from group to group did not work as well as expected. The aide should be in charge of one group for the entire year. This way he will get to know his group better and be able to help them more. If more teacher aides were available, better grouping could probably be established. Three groups were insufficient.

Also, the teacher should not have a separate group, but should supervise the entire class at all times. The teacher aides believed that they were left too much on their own and should have had more help from the teacher.

At the end of the first semester an attitude inventory was given to determine student attitudes and opinions about the course and the use of teacher aides. There were a series of twenty statements, six about the teacher aides and fourteen about the course itself. Of the six statements about the teacher aides, three were worded positively and three negatively. Of the fourteen statements about the class, eight were worded positively, six negatively. The students were then asked to check the column which most nearly told how they felt about each statement: "strongly agree; agree; uncertain; disagree; strongly disagree." The columns were weighted from strongly agree (1) to strongly disagree (5) with a reversal on the negatively worded statements. They were instructed not to sign their names.

Twenty students of the twenty-three filled out the inventory. A mean score was found for (1) the entire inventory, (2) each student, and (3) each statement. The mean for the entire inventory was 1.97 indicating a favorable reaction. Of the twenty students, 2 mean scores were less than 1.5, 14 were between 1.5 and 2.4, and 4 were 2.5 or above (Table 7). Of the statements, those about the teacher aides varied from 1.4 to 2.3 and those about the course from 1.6 to 2.6 (Table 8).

TABLE 7

Mean Score	1.1	1.3	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.5	2.6	2.7	3.1
Number of students with mean score	1	1	2	1	3	1	1	1	1	2	2	1	1	1	1

TABLE 8

A. About Teacher Aides					B. About Course										
Mean score	1.4	1.6	1.7	2.3	1.6	1.7	1.9	2.0	2.1	2.2	2.3	2.5	2.6	2.7	
Number of statements with score	1	3	1	1	1	3	2	1	1	1	1	2	1	1	

The SRA High-School Placement Test was given on May 21 to determine change in grade placement scores in mathematics. The same test had been given in February of the preceding year to the then incoming freshmen. Only 15 students who started the year remained at the end. The results of this test are given in Tables 8 and 9.

From Table 9 we find that three students had the lowest score which can be recorded for the test (2.0) in the eighth grade. The remainder of the scores ranged from 2.7 to 6.9 with a median score of 3.7 grade equivalent. On the re-test the scores ranged from 3.0 to 8.9 with a median score of 6.9 (which was the highest score on the pre-test). The change in scores varied from 0.5 to 5.3 with a median change of 2.9 and a mean change of 3.0. The range of scores on the pre-test was 4.9 grades, and on the post-test 5.0 grades.

Table 10 shows the difference in mean scores is 3.01. This, with the data of Table 9, shows that the students averaged three grade levels improvement during the year. The t of 8.85 indicates that the results are significant at much less than the one per cent level.

TABLE 9. S.R.A. High-School Placement Test

Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
8th Grade	6.9	5.5	2.0	2.7	3.7	3.4	4.1	4.5	2.9	3.1	3.7	4.1	4.4	2.0	2.0
Present	7.4	7.1	3.0	4.7	5.7	5.5	6.3	7.4	5.9	6.8	7.8	8.6	8.9	6.9	7.3
Change	0.5	1.6	1.9	2.0	2.0	2.1	2.2	2.9	3.0	3.7	4.1	4.5	4.5	4.9	5.3

TABLE 10

N15	Mean pre-test	= 3.67	σ pre-test	= 1.30	r	= .49
	Mean post-test	= 6.68	σ post-test	= 1.32	t	= 8.85

Most of the faculty members with whom the project has been discussed were most favorable toward it. Some have been interested enough to want to try it for themselves. The project is being continued in the school year 1959-60. Two remedial sections have been assigned and the teacher aides have been selected.

TEAM APPROACH TO TEACHING OF GENERAL MATHEMATICS

Could two teachers working in conjunction with the same class increase motivation, interest, and achievement of a group twice the size of a regular class? This is the problem which we have attempted to solve this year. These students had been classified "average." The students with higher achievement scores had been placed either in algebra or a fast section of general math, while students with lower achievement scores had been placed in "slow" general mathematics. Yet there was still a large range of ability within this group of seventy.

The program which these students were to receive was the same as all other classes of average general mathematics. It consisted of basically four areas (1) basic arithmetic skills, (2) introduction to algebra, (3) expansion of social topics, (4) introduction to informal geometry. The units were to be taught in the preceding order.

The first unit began with a comprehensive examination in basic arithmetic. This same examination was given to two regular size classes for the purpose of comparison. The statistical analysis of the results of this examination and one given at the end of the unit is as follows:

	<i>SD</i>	<i>SED</i>	<i>t</i>	Significant (10%)
Experimental & Comparison (1)	4.39	1.38	1.59	No
Experimental & Comparison (2)	4.02	1.09	1.27	* No

This statistical analysis indicates that there was no significant difference between the Experimental and Comparison in the increase in achievement between the pre- and post-test. There seems not to be a difference between these methods of teaching.

The students who had been placed in a fast section were able to obtain additional information and skill not normally taught. The slower students, being placed in a smaller group, were able to progress more rapidly than if he had been allowed to remain in the larger group. Make-up work could be given to a student the day he returned since the two-teacher system allowed one of the teachers to be available during class time.

The second unit also contained a pre- and post-test. Most students had little knowledge of algebra; therefore, all of the students were placed in the average section at the beginning of this unit. This allowed one of the teachers class time to prepare work, tests, and record grades.

This was a great advantage for even though the student-teacher ratio remained constant, the time involved in preparation of work and recording of grades increased.

	<i>SD</i>	<i>SED</i>	<i>t</i>	<i>Significant (10%)</i>
Experimental and Comparison	8.18	1.88	1.44	No

The null hypothesis was accepted. There seems not to be a significant difference between these methods.

Unit three gave the students an opportunity to display some ability in research. Students were expected to use outside resources. Groups were taken to the library while other groups remained in the room for discussion purposes. The main problem which developed was the problem of reading. Some of the students were able to gain information through oral reports that they could not have received if they themselves had to read and analyze the material.

Unit four lent itself more readily to the team approach than any other unit. The class was divided into twelve smaller groups. During the early stage of this unit, the class as a whole discussed, if discussion with 70 students is possible, the relation of geometric figures and the use of such instruments as a transit, angle mirror, *etc.* Each group was then given an opportunity to go outside and put into use the information obtained in the classroom. While some of the groups were outside, others were having a discussion on projects already completed. Each group was expected to complete four projects:

1. Finding the slope of a tract of land with the use of a transit
2. Finding heights through the use of an angle mirror
3. Finding heights through the use of shadows.
4. Finding distance through the use of similar triangles and a plane board

The team approach worked excellently here because it allowed students to be outside while still others could discuss their data collected and solve their projects. The teachers teaching the regular classes found this to be a problem.

Although no significant analysis could be derived from the data collected, both teachers felt the experiment to be a success, for it proved to *them* that the increasing of class size, even though the teacher-student ratio remained constant, developed problems which at times were unsolvable.

THE FIRST PHASE OF A FIVE-YEAR STUDY OF ABILITY GROUPING

In order to help us do an even better job of placement, we feel that a longitudinal study should be made. The present freshman class has been picked as the group. We plan to follow this class through their high-school career and through the first year of college. We plan to use all

standardized test scores and grades as a basis for predicting success in the various classes and sections of these classes. The predictions will be made for *all* classes of each grade, nine through twelve, plus the best predictors for college success.

The first phase of this study is now partially completed. Science Research Associates is helping us. The validity coefficients reported in Table 11 are based upon first-semester grades of ninth-grade students and their results on the *Science Research Associates High-School Placement Test*. The two scores on the reading section were combined to make one score.

TABLE 11

<i>Course</i>	<i>Test</i>	<i>Validity r</i>	<i>N</i>
English.....	Pictorial Reasoning	.34	697
	Arithmetic	.57	686
	Reading	.54	690
Biology.....	Pictorial Reasoning	.35	796
	Arithmetic	.53	804
	Reading	.50	797
Foreign.....	Pictorial Reasoning	.18	331
	Arithmetic	.42	349
	Reading	.32	348
Algebra.....	Pictorial Reasoning	.34	554
	Arithmetic	.42	565
	Reading	.31	558
General Math.....	Pictorial Reasoning	.29	235
	Arithmetic	.46	241
	Reading	.26	240
Core*.....	Pictorial Reasoning	.26	108
	Arithmetic	.47	98
	Reading	.47	112
Industrial Arts.....	Pictorial Reasoning	.40	154
	Arithmetic	.37	142
	Reading		142
Home Economics.....	Pictorial Reasoning	.43	125
	Arithmetic	.56	131
	Reading	.46	129

* A combination of English and social studies on a two-hour block of time basis.

From Table 11 it is readily seen that the best predictor for the various classes are: (1) English-Arithmetic; (2) Biology-Arithmetic; (3) Foreign Language-Arithmetic; (4) Algebra-Arithmetic; (5) General Mathematics-Arithmetic; (6) Core-Arithmetic and Reading; (7) Industrial Arts-Pictorial Reasoning; and (8) Home Economics-Arithmetic.

It must be remembered that some of these validity coefficients are quite close and that no attempt has been made to determine significance. The next step is to determine cutting scores based upon these validity

coefficients, test scores, and the average grade made in a particular section and in Home Economics and Industrial Education which are not arranged by ability grouping. We hope when this study is finally completed we will be able to tell what is the best predictor for *any* course in our high-school district and also what the best predictors for college success are.

ACCELERATED PHYSICAL SCIENCE FOR SOPHOMORES

The purpose of this study was to determine whether sophomores with an exceptional ability and interest in science will be able to do one year of work in high-school physics and one year in high-school chemistry in one year as preparation for the advanced placement program as juniors and seniors.

Our present science program uses physical science as a preparatory course for chemistry and physics which gives the top students the same status as the others. A much better background for the advanced placement program should be provided for the top students.

Much emphasis was placed upon reasoning and problem solving and little upon rote learning. A great deal of effort was made to relate chemistry and physics. Laboratory work was kept at approximately one period per week and one period per week was devoted to classroom demonstrations by students and teacher, to conserve time since there was a great deal of material to cover. Some of the difficulties encountered were:

1. A textbook was selected before the experiment was planned. This book was found to be very inadequate and hard to supplement. It was used for one quarter of the year.
2. Laboratory work is a problem because there is much material to cover.
3. Students lack a background of information which would be found in a regular class of chemistry or physics.
4. The post-tests were not difficult enough to list the top students properly.
5. A few students had great difficulty keeping up and thus held the class progress back.

Some of the remedies and improvements are:

1. Chemistry is being covered the first semester. Many topics found in physics also are covered, thus permitting the omission of some of the physics topics.
2. One experiment per week was planned which would have a definite relation to more than one topic of study. Many other experiments were done as a group in the classroom to facilitate time.
3. Instruction has to start with very basic information and build up.
4. Give standardized tests to the experimental and contrast groups the first weeks of school.
5. We plan to use the A.C.S. tests in chemistry and some other one for physics yet to be determined next year.
6. Screen the potential candidates for the accelerated program very carefully.

On November 4, 5, and 6, the pre-tests were given to four average classes of physics and to four average classes of chemistry and to the experimental classes. The physics test was *Dunning Physics Test* and the chemistry test was *Anderson Chemistry Test*. The experimental groups were pre-tested with both tests.

The post-tests were given the last week of school to all groups. This consisted of the same test as the pre-test. Data were then studied to determine if there was a comparison between the understanding of physics and chemistry by the experimental group and the contrast group.

The comparisons appearing in Table 12 show that growth in the mean and median in physics was much greater with the experimental group than with the control group. Also, the post-test mean and median were much higher in the experiments than in the control group.

The comparison of pre- and post-tests in chemistry showed a significant growth in the experimental group although it was not as great as in the control group. A study of the standard deviation shows a wider range of background for the contrast group than the experimental in the pre-test which decreased in the post-test for the contrast and became larger for the experimental. This may be attributed to more time's being devoted to application of fundamentals than could be devoted in the experimental classes.

TABLE 12

Group	M	σ	N	t	Sig.
Experimental Physics Pre-test	36.32	18.60	38	—	—
Contrast Physics Pre-test	36.21	24.00	70	.03	No
Experimental Physics Post-test	49.34	22.20	38	—	—
Contrast Physics Post-test	48.23	25.83	70	.23	No
Experimental Chemistry Pre-test	45.81	23.60	38	—	—
Contrast Chemistry Pre-test	43.90	36.00	92	1.91	No
Experimental Chemistry Post-test	57.18	56.80	38	—	—
Contrast Chemistry Post-test	66.54	—	92	.98	No

The t ratio between the classes in physics on the post-test was found to be .23. Quite clearly this indicates no existing significance between the means of the two groups after the experiment. The groups were found to be equal in their knowledge of physics before the experiment began. The t on the pre-test means .03. The t on the pre-test means of the classes in Chemistry was found to be 1.91. Again we find the groups to be equal at the beginning. The t on the two groups on the Chemistry post-test was .98. This also indicates quite clearly that there is no significant difference in the means. These non-significant differences indicate that the sophomores have gained as much knowledge in the two areas under consideration as have the juniors and seniors.

This program will (1) challenge the better student sufficiently, (2) will prepare him much better for advanced placement work than a regular physical science course, and (3) will give him a background of information almost equivalent to three years for the regular student (physical science, chemistry, and physics).

THE USE OF LAY SUPERVISORS FOR STUDY HALLS

Two part-time lay study hall supervisors were employed in District 214 during the 1958-59 school year. These supervisors were retired persons living in the community. The question requiring an answer was, "Are study hall conditions as desirable under lay supervision as under certificated teacher supervision?" The answer seems to be, "Yes, provided the lay supervisor can work effectively with high-school age students."

One supervisor proved very effective. The dean, principal, and fellow teachers reported on the basis of personal observation that his study hall was quiet and orderly, that the students were applying themselves to their school work. His reports were complete and on time. The students accepted him as a regular member of the faculty.

The other lay study hall position was filled by a retired teacher during the first semester. His supervision was very effective; however, he resigned at the end of the first semester and his replacement proved less successful in maintaining good study hall conditions. Her relationships with the staff were good, but the observation of the administrators indicated that she experienced some difficulty in maintaining good order at times.

We recommend the plan of lay supervisors for study halls to other schools and intend to continue the plan.

Use of Tapes, Language Laboratory, and Teaching Teams at the J. Sterling Morton High School and Junior College

WALTER L. COOPER

IN THE fall of the 1958-59 school year, four projects were begun. These projects were concerned with the use of tapes as a media of instruction, with the effective use of a language laboratory, and with the team approach in teaching. All four of the projects are continued into the second year during 1959-60 with no changes in staff personnel.

It was early discovered that no one of the four projects could be completed with any degree of satisfactory knowledge about the outcomes of the study within the first year. This article becomes a progress report. Each project will be separately described.

TEAM APPROACH TO THE TEACHING OF AMERICAN HISTORY AND AMERICAN LITERATURE

In the fall of 1958-59, two teams of two teachers each began the study of a team approach to the teaching of American history and American literature. The two teams were located in different buildings. Approximately one hundred and twenty students were involved. The last two periods of the school day were utilized for these classes. In each building two basic sections were established in such a way that they could work together in a larger group or separately with both groups coming into contact with the two instructors during the two-hour block.

In the week preceding the opening of school in 1958 and again in 1959, the four members of the teams held a workshop. The first workshop was concerned primarily with the development of basic units of study, preparation of reading lists, and exploring and agreeing upon techniques to be used in working as a team. The second workshop continued in sharpening up these objectives, but was primarily concerned with the evaluative processes. The team members were each provided with one period of

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released time—the same period of the day for all. This provided for many joint meetings of the two teams, but they were handicapped somewhat by the distance between the two schools and the time element as it related to other responsibilities. All students in the project were from the upper quartile on the basis of national norms.

Some of the effects of the program. Participating in a program aimed at better utilization of teacher time has been fruitful in bringing into focus certain deficiencies of the usual methods of instruction, and has pointed to the possibilities of more effective instruction and learning through methods involving team teaching and cooperative planning.

Students in American history classes at Morton are provided with opportunities to explore, develop, discuss, and analyze significant figures, movements, events, and crises in the growth of the United States. They are required to present the results of their investigations in written form as well as orally. The American history instructor usually devotes at least three days, and often more than a week, in instructing students in the techniques of writing acceptable papers. However, because of his interest in his own field, he resumes instruction before his students have gained a satisfactory degree of proficiency in organizing and presenting their ideas.

Team teaching and the cooperative planning of the American literature and the American history teachers have circumvented this problem. While the English teacher instructed students in the art and mechanics of effective expression, the history teacher was able to devote himself to the field in which he is most effective. Such cooperative planning conserved teacher time and enabled each teacher to utilize the professional skill and experience of the other. By the time the students had selected their American history topics, the English teacher had given them adequate instruction in note-taking, organization, and documentation. The students were required to submit their outlines and the first drafts of their projects to the English teacher. The final drafts were turned in to the history teacher. A joint appraisal of their papers found them to be of a higher quality in terms of assimilation, summarization, organization, and coherence than the papers of students with comparable abilities in American history classes which were outside of the project.

Many movements, literary and historical, were treated more intensively than is possible in uncoordinated classes. Gifted students were given more opportunities to express their interests and to explore and analyze problems in greater depth than they would in normal learning situations. Some of the problems which engaged the attention of these students included "The Impact of Darwinism on American Literature," "Social Forces Motivating the 'Beat' Generation," "Mahan's Influence on U. S. Foreign Policy," and "The History of Berwyn" (one of the communities served by Morton High School).

The team approach provided that flexible program in which significant contemporary writing and events were incorporated, enabling students

(1) to appreciate the relationship between the past and the present, (2) to gain an insight into the social and artistic value of American literature, and (3) to recognize that they themselves were participating in the creative and historical life of America.

Training in Depth for the academically talented students. Special activities and projects, individual and group work, organization and methods have contributed to this goal. For example:

1. Study of the Drayton poem, "To the Virginian Voyage," in conjunction with study of the voyage in the history class.

2. Study of selection from Hakluyt's *Principal Voyages* in conjunction with study of exploration in the history class.

3. Unified study of Transcendentalism.

4. Group study of Hawthorne's *House of Seven Gables*, and evaluation of the novel in relationship with the time segments represented.

5. Initiation of long-term study of American authors. This resulted in the writing of two further research papers. The authors were selected for their significance in the American literary and/or historical scene. They included Melville, Jack London, Pearl Buck, Sinclair Lewis, Edna Ferber, Ernest Hemingway, and many others.

Cooperative planning. The workshop in August 1958 afforded an opportunity to organize the year's work around six major historical epochs. Cooperation in achieving better use of teacher time in the presentation of audio-visual materials has been achieved by planning on the part of the teacher team, and by student-teacher planning where pertinent. Co-operative planning, supervision, and evaluation of field trips has extended into trips to the Chicago Historical Society, the Chicago Art Institute, and a two-day trip to Greenfield Village in Detroit.

Enrichment of offerings to students. From the increased research which the teachers are enabled to do in their respective fields comes an enrichment of the student program. We have noted that as a result of this enrichment the more industrious students respond with an intense desire to learn and to widen their cultural scope. While on the other hand, the indolent student of equal capability seems only to become lethargic and unresponsive to motivation of any kind.

Tests developed. Two tests have now been developed which will be used to assist in the evaluation of the outcomes of this instructional program. These tests will be used with other similar groups that are not related to the project.

A STUDY OF VOICE LESSON TAPES AS A MEANS OF IMPROVING INSTRUCTION AND LEARNING IN FIRST YEAR SHORTHAND

It has been felt that many beginning shorthand students develop a psychological block to learning shorthand because of fear. Others are slow in developing the ability to write good shorthand outlines. It is felt that these conditions could be alleviated if the shorthand teacher has

sufficient classroom time for individual help, guidance, correction, and encouragement. The traditional oral method of teaching shorthand does not afford the teacher sufficient time for these things.

On the basis of these statements, it was assumed that through the use of tapes, thus freeing the teacher for more individual attention to each student, these students would learn shorthand more rapidly and more thoroughly.

Two classes of beginning students in shorthand provided the students for the project. The students were selected during the summer of 1958 on the basis of (1) C. I. scores, (2) scholastic averages, (3) sex, and (4) age. (Beginning shorthand students may range from tenth to twelfth grades.) Students were distributed between the two classes in a paired relationship to assure two classes of equal abilities. The same instructors taught both classes. One class identified as the control group was taught by the usual method of oral instruction. The other class identified as the experimental group was taught by the use of tapes only.

Many of the tapes used in the study were commercial ones which were purchased for this study. The greater number, however, were made by the teacher during the summer preceding and during the released time given for conducting the study.

Presentation of the theory of shorthand. During the first semester, the theory of shorthand was presented to shorthand students. The control class was taught in the same way as classes have been conducted by the teacher in the past. The experimental class was taught mostly with the presentation of the theory being on tapes. This phase of the project went ahead quite smoothly. The teacher was inexperienced in the preparation of voice tapes and how to prepare these tapes in a manner that would permit the class to proceed smoothly and to have ever present the best learning atmosphere.

What data to collect. The teacher was continuously concerned about the kinds of information that should be gathered and recorded for analysis. The teacher and the consultant agreed upon the following data to be used in making a comparative study. These data are now in the process of undergoing statistical analysis.

1. The percentile ranking of each student obtained from the various tests administered before the student entered high school during the last semester of the eighth grade.

2. The raw score which the student earned on the comprehensive over-all brief form test. Brief form knowledge is very basic to a student's success in shorthand.

3. The reading rate in words per minute which the student established on reading from material which he had never seen before. This tested his ability to spell and comprehend new material.

4. The reading rate in words per minute which the student established by reading from notes which had been written by the student himself and which had been practiced as much as the student desired.

5. The raw score earned by each student on a very comprehensive 100-word theory test. This same test was given to both classes and included words from every chapter in the book, which would test their knowledge of theory retention, application of theory, and just plain memory.

Some false starts. The first tapes that were made did not provide for sufficient material for the entire class period which necessitated the filling in with activities not necessarily oral in nature. If the tapes had been so constructed as to supply the class with more than enough activity on tape, there might have been a considerable difference in reaction of students and, consequently, in the results. It was difficult first to prepare tapes which would bring the student to a level of response in which he would forget he was listening to a tape.

It was originally thought that the Gregg prepared tapes could be utilized to advantage in the class. However, it was found that the use of these tapes caused the dictation of material to be in a very set manner which allowed for no variation. It would seem advisable to put the dictation on the same tapes as the theory is presented so there is a continuity and consequent adapting of materials to the needs of the particular class.

Another false start was in not having outlines or script to accompany the tape. Without such an outline the teacher does not know when to stop the recorder for class response and the program cannot run smoothly.

Then again it is unwise to prepare many tapes far in advance. Such a procedure does not provide for needed flexibility, additional emphasis that must be given, and tapes cannot be geared to the progress of the class.

At the end of the first semester, there was some evidence that the balance of superiority was in favor of the control group. This evidence was not conclusive, however. The second semester of beginning shorthand is basically concerned with taking of dictation. The students have the opportunity of making use of the theory they have learned during the first semester.

System of measurement. The following system of measurement was devised so that the classes could be compared. The first student in the Experimental Group passed her 40-word test with 97 per cent accuracy. Passing the test in this manner gave her a total of 388 progress points. These were arrived at by multiplying 97 per cent times 40, leaving off the cipher. The next test taken would have to total more than 388 progress points to show that progress had been made. The highest test this student passed the first term was a 60-word rate for three minutes with an accuracy of 94 per cent. Even though it was not passing with 95 per cent of accuracy, it was recorded. This gave her a total of 564 progress points, or a spread of 176 for the term. In this way, the total progress points of a student could be determined for a term and the two classes could be compared. The progress points of each group was totaled by terms and the



In-service training session for teachers in the use of the language laboratory.—
J. Sterling Morton High School, Cicero, Illinois



Two classes view movie together, releasing one teacher for other activities.—
Morton High School, Cicero, Illinois

arithmetical mean was found. This was the method used for comparing the two groups.

Following will be found a compact tabulation which lists the means of the total progress points for both groups during each term. Also, there is listed the average percentage of accuracy on the first test given to each class each term. The first test was always given to all students.

TABLE I. Progress Points Experimental and Control Groups by Six-Week Periods

	<i>Mean 1st Six Weeks</i>	<i>Mean 2nd Six Weeks</i>	<i>Mean 3rd Six Weeks</i>	<i>Over-all</i>
Control.....	283.2	241.5	201.0	393.5
Experimental.....	244.8	247.0	120.2	326.7

During the first six-week period, the Experimental Group amassed a total of 6,365 progress points, the mean of which was 244.8, as shown in Table I. However, the Control Group totaled 7,365 points with a mean of 283.2. This is quite a substantial difference. Both classes started with a 40-word test and progressed from that point. Both classes took the same test. It is also interesting to note in Table II that, on the first test given, the average percentage of accuracy in the Control Group was 97.3 per cent and in the Experimental Group it was 91.2 per cent. The Control Group had done considerably better on their first test. However, they were required to progress from that point. The Experimental Group could have shown considerable progress from their first test since their average accuracy was below the 95 per cent required for passing. They all did eventually pass the 40-word basic beginning test, but did not progress as far as the Control Group.

TABLE II. Average Accuracy On First Test Each Six Weeks

	<i>Average % Accuracy 1st Test at 40 1st 6 Weeks</i>	<i>Average % Accuracy 1st Test at 50 2nd 6 Weeks</i>	<i>Average % Accuracy 1st Test at 60 3rd 6 Weeks</i>
Control.....	97.3	92.1	96.96
Experimental.....	91.2	83.9	95.2

Space will not permit a further analysis nor other tabulations. These have been included to illustrate the procedure used.

Conclusions at the End of the First Year

1. The study should be continued for another year. There were numerous false starts, many things learned, and many improvements to be made in the study which would make its findings more valid.

2. A concerted effort to provide better tape recordings for the classes must be made. Tapes must be expertly constructed in such a manner as to be constantly interesting to the students to hold their attention.

3. With a new year of study, the groups should not be selected, but should be a random group as would enter any class in shorthand. It is felt this also would provide more valid results more applicable to the average classroom situation.

4. There must be a concerted effort to consider individual differences. It has been found that certain students progress at a much more rapid rate than others. Consequently, the teacher is fighting for time to help first the one group and then the other. Arrangements must be made whereby all students can be helped at once. Equipment is on the market and available for this help.

5. Both classes did progress commendably. True, the Control Group did progress more than the Experimental Group; however, it was stated previously that this group may have suffered as a result of the numerous false starts, inadequate tape recordings, *etc.* In another year's study, an attempt will be made to make the class run more smoothly with well-prepared materials. Less use will be made of commercial tapes.

6. Experimental class has noted its willingness to have the teacher walk around the classroom for observation and individual help. Previously shorthand experts have said this is definitely not the thing to do. "Stay in front of the room," they said.

7. It cannot be stated that the Experimental Group proved that the use of the recorded tapes for shorthand instruction is superior to the traditional oral method of teaching and presentation.

8. It cannot be stated that the oral method of presentation is superior to the experimental procedure tried out here.

9. Another year of study (at least) will still bring out many new ideas not uncovered as yet. This instructor feels that there will be new ideas discovered as to things which the teacher may be doing with or in the class while the class is being taught with tape recordings.

10. The teacher is able to check much more homework on the spot when the tape recorder is being used.

11. It is much easier to get test results in the hands of the students when tapes are being used and the teacher can correct some of the test papers written.

12. There is a distinct advantage in the teacher's being able to walk around the room to observe the students. The teacher is able to observe and has time to stop and think right then what to do about a particular problem.

13. The teacher is able to give the class as a whole much more help than at any time previously.

14. Classes may be started the minute the beginning bell rings and may last up to the last minute.

15. Students who have been absent can more easily make up work which they have missed by sitting and listening to the day's recording played over again.

TEACHING BEGINNING ITALIAN USING TAPES AND A LANGUAGE TEACHER UNTRAINED IN ITALIAN

The problem was to determine to what extent a teacher trained in language, but not in the particular language under investigation, could teach Italian, having at her disposal tapes prepared by a master teacher of Italian. Our hypothesis was that the language instruction under these conditions could be effective.

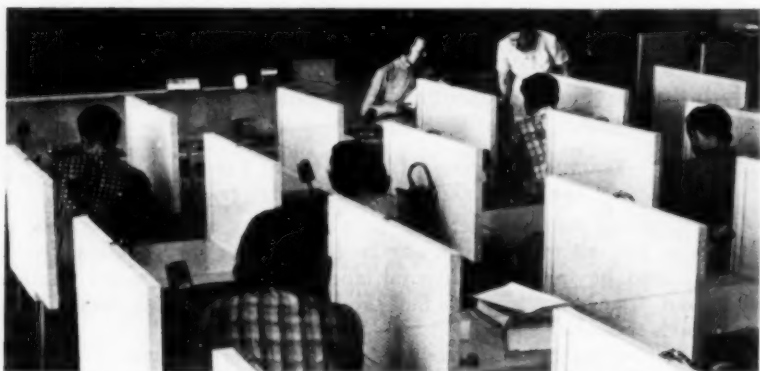
The trained teacher produced on tape a number of lessons especially adapted from a text (*Beginning Italian Grammar*, Vincezo Cioffari). In making these tapes, he had the advice and help of the teacher not fluent in Italian, who, however, is experienced in the use of tapes, and who is a teacher of another foreign language. During the school year, the teacher, not fluent in Italian, taught the class in Italian using the tapes prepared by the master teacher. Each week, or as needed, the two teachers conferred concerning problems, new approaches, and comparisons of findings. As we continued to make new tapes we adjusted the material in the light of findings that occurred as the teaching progressed.

A grammar text was adopted as the basic textbook. However, since most grammars have only one section of each chapter devoted to conversation and since our experiment is basically a tape-conducted experiment, it was necessary to alter the method of approach used in the text and write a supplementary number of exercises based entirely on the aural-oral method to be used in conjunction with the text. Briefly each supplement contained nine parts which were all taped in the following order:

1. Reading
2. World List
3. Drill on Consonants and Vowels
4. Points of Grammar Explained
5. Language Practice in Dialogue Form
6. Examples of Grammatical Patterns
7. Oral Comprehension
8. Summarizing and Further Illustration of All Points of Grammar Presented in the Chapter
9. "Quanto Sapete?" or "How Much Do You Know?"

Brief Description of Each Part

1. Reading. This consisted of about forty to seventy-five lines written in the foreign language which dealt with one phase or another of the Italian culture. This experiment was conducted with the Italian language. This read-



A class using the language laboratory.—J. Sterling Morton High School, Cicero, Illinois

ing was recorded on the tape at normal speed. The students listened as this was played and they were asked to pay special attention to pronunciation and intonation. In a second reading, each sentence was followed by a pause during which the students repeated in the foreign language exactly as they heard. They have the text of the reading so they could see what they repeated.

2. The second part was the word list—words used in the chapter. Students listened to the tape and repeated in the pause provided for this drill.

3. Part three was a drill on consonants and vowels.

4. Part four was called practical grammar in which points of grammar were explained in English, followed by a large number of sample exercises in the foreign language to give the student a workable knowledge of the point of grammar being studied.

5. Part five was called language practice which was a dialogue in Italian. Students first listened to the tape; later the teacher divided them into groups in order to practice in pairs in the foreign language. If any student wished, he could listen to the tape to acquire a better pronunciation. Ear-phones were used for listening.

6. Part six was called grammatical patterns where additional points of grammar were explained and amply illustrated with many examples.

7. Part seven was called oral comprehension. It consisted of about twenty questions in Italian based on the reading which was learned earlier. These questions were used for home work, for short quizzes, or for aural-oral exercises.

8. Part eight consisted of a large number of short sentences which further illustrated all points of grammar learned in the chapter. In addition to this, many points of grammar studied previously were often reviewed in this section.

9. Part nine was called *Quanto Sapete?* or How Much Do You Know? It was a carefully prepared test based on one chapter.

As it is evident from this outline, emphasis was placed on the aural-oral method and on repetition. After the text was prepared, typed, and stapled in the form of a pamphlet, it was recorded on tape. The teacher who was

to teach the course now helped in preparing the tape, thus acquainting herself with the material in each chapter. One reel of 1800 feet of tape was used to record a single chapter. Each chapter, or unit, was contained therefore in one reel of tape. The teacher would play back as often as it was necessary any one of the eight sections of the chapter the class was studying. Samples of these pamphlets may be obtained by writing to the J. Sterling Morton High School.

Some Handicaps

At the outset a good number of teachers were hypercritical of the experiment. Such questions as: How can a teacher who has no mastery of a subject teach it? What about legal implications? If the experiment is going to prove the hypothesis, what will prevent unscrupulous school administrators from employing unqualified teachers who would teach entirely with tape? These questions and many more at the beginning had an adverse effect on the teacher who was to teach the class. However, most of the questions were answered to the satisfaction of those who asked them, and the experiment went on with full backing of the administration and most of the faculty.

We believe that, at the end of the first year of this experiment, the results are gratifying and promising. The students have definitely learned some Italian. The experiment is being continued into the second year.

MORE EFFECTIVE TEACHING OF LANGUAGE BY USE OF A LANGUAGE LABORATORY

This study was undertaken primarily for the purpose of determining to what extent language instruction can be made more effective through the use of a laboratory. Other stated objectives were: (1) to determine effective means of language laboratory usage, and (2) to determine the extent of pre-service and/or in-service training needed to make more effective use of a language laboratory.

The hypothesis was stated as follows: "By using a language laboratory, language will generally be taught as effectively as by the traditional method, but that, in addition, certain areas—oral and aural—will be taught with an increased degree of effectiveness.

We had planned to have the laboratory equipment installed and ready for use in November 1958. Delays in installation resulted in not having the laboratory available until after March 20, 1959. Consequently, we are going to report at this time only that district-wide testing of all second-year language people was conducted during 1958-59. Testing was done for all students in the district in second-year Latin, French, German, Italian, and Spanish. Tests were administered in both the written language and in the audio-oral skills. We expect that the results of this district-wide testing may provide data to be used during 1959-60 in the construction of the project.

Glenbrook Reports on Four Experiments on Utilization of Staff

WESLEY G. BOVINET

AT THE outset, tribute should be paid to my learned colleagues, Dr. Norman E. Watson, Superintendent; Dr. Lydia Holm, Chairman, Language Department; Mae Richards, Chairman, Mathematics Department; and Earl Young, Chairman, Science Department. These people very graciously allowed me to steal their "thunder" from the evaluations and various yearly reports, articles, *etc.* of the past year which came across my desk relative to the program at Glenbrook with the state-wide co-operative study of staff utilization.

In the short six-year history of Glenbrook, the major problem has been our soaring enrollment. Six years ago we had 650 students; this fall our student body was about 1725. Population studies forecast an enrollment within the next decade of more than ten times the original 650. Thus, being faced with a rapidly expanding student body, coupled with a highly probable shortage of well-trained, experienced teachers, and with a growing difficulty of furnishing more school plant facilities, Glenbrook High School has felt for some time that ways of coping with this situation should be investigated, tried out for a year or two, and carefully evaluated. We have been very well satisfied with our progress this year in terms of accomplishment with our staff utilization projects. Our projects have been evaluated in terms of student welfare and teacher morale with the former receiving greater emphasis—just as it should. Naturally we will just have space here to hit the high spots on our progress reports.

LARGE CLASS IN PLANE GEOMETRY WITH TWO TEACHERS

Our organization here was a class of eighty-one pupils taught by two well-trained and experienced teachers. Our experiment was one of class size and not subject matter. Our students were chosen simply on two factors at random: those whose schedule would permit it, and, secondly, if no strenuous objections were made by students or parents.

The classroom used was a medium sized study hall with a door at each end and a blackboard at each end. The room had one bad feature—it

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was very difficult for the students and the teachers to hear students talk. Although some attempt was made to relieve this situation, the time could not be taken from the class to "play around" with "public address" situations.

At the beginning of the second semester, the pupils were asked to express themselves concerning their likes and dislikes, giving constructive and destructive criticisms. Taking tips from these papers, we tried to change things that were annoying the students. The class was faced toward one end of the room one day and toward the other end of the room the next day, giving more students the opportunity to be nearer the front of the class. Attempts were made to call on students at random instead of waiting for volunteers. This had to be abandoned because of the time consumed. Because a small group of students felt that they could do much better in a small class situation and because many students' responses showed a comparison of the large class in geometry with a small class in another subject (the only basis on which they could make comparisons), we decided to split the class into three small groups for the last grading period of nine weeks. Upon coming back together for a final meeting, the students had an opportunity to express themselves on a check list which included items suggested in student comments, by the guidance director, and by both teachers.

We tried to keep a fairly normal, regular-sized classroom atmosphere. Both teachers made a real effort to learn the names of the students during the first few days so that they could call on the students in class quickly and so that they could speak to individuals by name in the halls. They also attempted to keep up on the activities of the students. I believe that there was a friendly feeling in the classroom and that most of the students who didn't want to recite would not have wanted to do so in a regular size class. The students cooperated in every way. We had no disciplinary problems.

Materials were dittoed from students' homework and tests to give the students an opportunity to criticize each other's work. These materials included responses which were either entirely or partially right or wrong. We found that the students enjoyed the many peculiar ways in which ideas were expressed. They learned much from correcting, accepting, and rejecting other student's statements. An opaque or overhead projector could have been used to good advantage in showing the class how individual students worked various proofs, construction problems, and exercises. It was impossible for us to get this piece of equipment from one part of the building to another during the passing break.

Tests, scratch paper, and answer sheets were counted and stacked so that on test days these materials could be passed out with the least amount of wasted time. Many short quizzes were used in order to give each student more opportunity to express himself. Students liked to have homework checked and discussed in class. They were particularly

demanding about going over tests which were handed back the very next day. We did just as much of this as time would permit and still give time for the presentation of the basic concepts of the next day's assignment.

We found that the range of grades followed the range of abilities combined with study habits. It was necessary to reserve a period immediately before class to get plans ironed out and to get a clear picture of class procedure. If one teacher was absent for several days in a row, the grades on the next test had a tendency to be lower than expected. In case of the absence of one teacher there should be at least a part-time helper to care for the small chores of attendance, tardinesses, and collecting and returning daily papers. The fact that one teacher would come in late or not at all on a single day did not effect the students. By the end of a class period, there was a feeling of having given of one's self. On account of this we believe that four such classes, with not more than two in succession, should be the load limit. This would give added time for student-teacher conferences. The large classes really need 45 to 50 minutes. The teachers must be very sure of subject matter and must be very sure where they wish to take the class each day with carefully laid lesson plans.

All in all I believe that the large class was a successful experiment. It did work more than reasonably well. It could work much better with but a few minor changes, such as raised blackboards with a dais, both the overhead and opaque projectors housed in the room all the time, a slightly longer class period, and some method of voice amplification for students and teachers alike.

Lack of space with this report prevents us from reporting all our statistical data compiled on this class. These are merely listed in order for the reader to understand that they were prepared and could possibly be made available.

Table 1 First-Semester Grades in Plane Geometry Plotted against the Recommendations of the Mathematics Department

Table 2 Comparison of First-Semester Geometry Grades with the Algebra Grades

Table 3 Tabulation of Algebra and Geometry Grades with I. Q.'s

Table 4 Tabulation of Algebra and Geometry Grades with the Results of the Differential Aptitude Tests

Data Sheets from which the above Tables were derived.

Comments of Pupils of Plane Geometry I abe.

Check List with Student Responses.

There are still some questions which need additional investigation:

1. Is it possible to identify the pupils who would do as good a job or a better job in the large size class?
2. Is it possible to identify the teachers who are capable of handling large groups successfully?

3. Would it be better to have the large groups together three of four times a week but divided into smaller groups the other days of the week? If this latter idea were used, could the main group be larger?

LARGE CLASS IN GENERAL SCIENCE WITH TEACHER AND TEACHER AIDE

Glenbrook has been discussing the probable use of teacher aides from the time of the Ann Arbor research report. This past year we used a teacher aide with a class of forty-five students in general science together with a regular teacher who was assigned to the class. In general, we wanted the teacher to be able to devote all of his time to teaching while the aide was responsible for the other matters involved in the regular class routine. With that in mind we selected a very capable woman who was a college graduate, a housewife, and the mother of one of our former graduates. Our aide had had some teaching experience as an elementary substitute teacher.

We used the *Read General Science Test* on the large class (A) and two regular classes (B and C) as controlled groups. The results show that the large class did better on the whole than the two smaller classes. These were groups of 23 and 25 respectively.

In September the large class (A) had no standard scores below 82, while the average class (B) had 4 people below 82. In June the large class A had no standard scores below 97, while the average classes had several scores below this level. Also, one individual in the large class A had the highest score achieved in all the general science classes. A few points in summary on the large class by the science people were about as follows:

1. Students were put more at ease in that they were able to realize that tests, assignments, and workbooks would be graded more rapidly and on a set schedule.
2. Tests were better as a result of more time and effort put in on preparation.
3. Planning period with teacher aide was very helpful.
4. Absentee work was completed in quick time with aide.
5. Regular teacher had more time for class preparation.
6. It was easier to keep grade book up-to-date and in order.
7. With two people and the group of 45 students, it was more difficult to obtain the informality that the small group had.
8. Aide was used to good advantage outside of classroom. As a result her time was limited inside the classroom. All felt that better balance should be possible.

After an examinaion of our total general science classes, it is now our feeling that a class of 45 students can be taught better on the whole with a regular teacher and an aide than a regular class of 28-30 with one teacher.



The use of taped materials heard through headsets "extends" the teacher and permits two separate class activities to be carried on simultaneously without interference to either one.—Glenbrook High School, Northbrook, Illinois



Glenbrook High School's modern foreign language laboratory in operation with a class in Spanish I under the direction of Dr. Lydia Holm.

TEACHER-INTERNSHIP PROGRAM

For the past year we had nine of our beginning teachers in an internship, in-service program. This was a prestige program and in no way connected to student or practice teaching. These young people, all in their first year of teaching, were placed on the salary schedule, but given a reduced load of one class per day to meet with the superintendent, other administrative staff, resource people, or others assigned or delegated to the group. This is a program in which the beginning teacher gets to know, at firsthand, the administration and the school's educational philosophy. Stress is placed on the fact that the worth of the program depends upon the interns themselves since it is a program for them.

These young interns were very proud of their status with this year's program. We really went all out to obtain high-caliber people from the top ranks of their class and they were carefully interviewed by our Superintendent, Dr. Watson, for outstanding achievement and personalities. Space will prevent a re-cap of all we had hoped to achieve in the program, but here are just a few:

1. A better understanding of the problems of students and the school in general
2. An understanding of the teacher's strengths, weaknesses, direction of needed growth, and the nature and value of sources of help
3. Ideas, techniques, procedures, *etc.* made available and clear for use in classes
4. Participation in experience which broadens the teacher's educational outlook
5. An analysis and evaluation of the effect of various pupil experiences on their behavior and progress
6. Growth in service

It would appear that the current internship program at Glenbrook High School has great possibilities although there are many problems involved as one attempts to develop the program. Our experience during the current year has been a most satisfactory one, and the evaluations at the end of the first semester and at the end of the second semester by the interns themselves have been entirely favorable. It is very difficult to plan any kind of analysis because one is dealing with individuals, and there are so many problems involved in such an analysis that about the only evaluation we have attempted to date is the statement of opinion by these individuals.

Perhaps the most difficult problem is the matter of funds with which to finance this program. It is our considered opinion that the program cannot survive unless funds in addition to regular salaries are provided. We do not believe beginning teachers are willing to give extra time to very much of this kind of activity and we believe also that a "streamlined" version which might involve a very small amount of additional time would be almost worthless. It would appear then that school dis-

tricts or other sources must provide the funds which make up the amount necessary to free beginning teachers for this program.

Another problem is the amount of time which it takes for at least one administrator to plan and coordinate this program. The present program at Glenbrook has been planned and coordinated largely by the chief administrator, although many other people have had a hand in this. We believe that probably too many activities have been included in this program, but this has been largely due to our inexperience, as well as the desire on the part of the interns to have these activities and discussions included. At the very beginning of the program, it was made quite clear that the interns themselves would be given a great deal of opportunity to help plan the program. Many of the discussions have been the result of their own request.

The third problem, which is one of future planning, is the matter of the length of the program. We have a sincere belief that this program should be one of about three years. It should start perhaps with the practice, or student teaching, year under the supervision of the university, and then two years under the supervision of the administration of the district. The first year of the two-year interval within the school would be the type of orientation program we have used at Glenbrook this year. The third and last year, or the second year within the actual school itself, would be one during which the interns would be given some free time, although not necessarily a daily period, but some free time with which to meet with a master teacher who would also be given some free time. It seems to us that a carefully coordinated three-year program of this type should be able to develop young teachers into very worth-while people and get them over the tremendous problem of the first two or three years. This means, however, that, for the two years of employment, a school district or other agencies must make up the deficit and this will be a very great problem for many school districts. As salaries move higher and higher, the cost of freeing any teacher at least one period a day begins to be a critical problem. It will be necessary to find additional funds or ways in which to save money from presently employed teachers if such a program as this is to be continued. We do not feel that it will be worth while if it is only a part-time program because one of the values is the daily meeting with the interns. We have found that when an occasional delay has been caused because of a very heavy schedule of other activities, the young interns feel that they have missed out on something and they prefer the daily meeting with the administrator. We do not feel that once or twice a week will suffice and do feel sincerely that the daily meetings are of very great value.

Earlier this school year each of the nine new teachers participating in the experimental internship program made a statement evaluating the program. Although their interests were varied and all were rather opinionated, the group were united in their affirmation of the project.

In retrospect, they saw that the program had weaknesses—some problems were not anticipated and some activities were needlessly repeated while still other worth-while activities were not included—but they agreed that the positive values predominated.

One teacher stated that the program proved its worth by facilitating the rather sudden transition from "the ivory towered and ivy covered walls of colleges" to "infinite day-to-day problems of being a part of an educational institution." Others spoke of the usefulness of establishing good communication between the faculty and the administration or of the significant opportunities for "further instruction in the principles, techniques, and philosophy of teaching and guidance *as the actual situation unfolds.*"

Random Comments of Intern Teachers

The intern meetings were a wonderful, enlightening, and meaningful experience for me. . . . All of us enjoyed the close, honest, truthful, and meaningful experiences in these meetings. . . . An honest attempt was made by those in charge to help break down the barrier that too often develops in many schools between staff and the administration. . . . The reduced load of four classes was a most welcome benefit. . . . The inestimable stumbling blocks in the path of the first year teacher were to a great degree eliminated and the first year of teaching, rather than being one long trial by error, has, I believe, been one with a certain measure of success. . . . It has helped each member gain the confidence so necessary for successful teaching. . . . New teachers are brought together in a sense of freedom and closeness—a feeling of security. . . . It seems that a bond of mutual cooperation developed among the group itself and those who during the year met with it. . . . The internship program for new teachers should be in every school.

As a sidelight it might be added that the intern program apparently played cupid because one pair (English and social studies) announced their engagement toward the close of the program. Perhaps this should have been a part of the total evaluation picture.

FOREIGN LANGUAGE LABORATORY

For several years Glenbrook High School has attempted to provide aural-oral training with phonograph records and tape recorders in the classroom. Any teacher who has tried to give thirty or more students an opportunity to record even a few sentences during the forty-five minute period knows what a frustrating experience it can be. This recording is a time-consuming procedure with little value unless the student can hear what he has recorded and have his errors corrected by his teacher. To accomplish the latter, the teacher must allow another class period or call each student in for a private conference. Phonograph records may be used in a classroom situation for listening and choral repetition, but again the limited time prohibits the teacher from checking the accuracy of the pronunciation of individuals in large classes. A few students at Glenbrook did arrange for practice with the records and tape recorder outside of class, but no general program could be set up which required the completion of definite units of work.



The two-teacher approach to world affairs has permitted the selection of small groups for intensive work with one teacher in a small conference room. Results of their research have then been presented to the entire class in the form of panels, individuals reports, and informal discussions.—Glennbrook High School, Northbrook, Illinois



An auditorium is suitable for many large group activities. This class of about 120 English students has assembled for a literature lesson. A motion picture has been shown and the three professionals are giving their various interpretations and comments.—Jefferson County (Colorado) Public Schools

As a great deal of money is involved in setting up a language laboratory, we decided at the outset not to risk the investment necessary for the installation of a class or thirty-booth laboratory. In order to be sure we were on the right track we just used a simple four-booth setup this past year.

The first step in operation concerned the language teachers. Operating techniques had to be mastered not only well enough to use the machines themselves, but also well enough to teach their students to use them. We solved the problems of administration and supervision with the members of the department sharing these responsibilities during their vacant periods.

Because we had only four booths, all modern language classes could not be accommodated and a choice had to be made. The decision was made to give most time to the advanced classes, the third- and fourth-year classes of Spanish, French, and German. Less time was given to second-year classes, and only two first-year classes in Spanish could be crowded into the experiment.

This coming school year, the laboratory at Glenbrook has grown to accommodate approximately half a class. We plan to continue individual instruction (the library method) as we have the past year. We shall be able to enlarge our experiment considerably, however, for we shall now be able to use the laboratory for class drill and testing. Since the laboratory room seats an entire class, we shall be able to accommodate each student for half a period in the booths.

Although Glenbrook has had only four booths the past year, we feel that the experiment has been very worth while for the following reasons:

1. Aural-oral skills were perceptively perfected when the laboratory drills were used, but scientific testing of results was impossible because of the limited number of booths.

2. The time-consuming procedure of searching for and preparing practice material has resulted in the beginning of a tape library to which other drill material will be added in years to come.

3. The laboratory provided opportunities not offered in large classes:

- a. Drill in listening to and speaking the foreign language

- b. Motivation for perfecting pronunciation and fluency, as evidenced by the number of students who devoted additional time to perfecting their responses on the disks.

4. The experience of starting a laboratory with a small number of booths has been very valuable in learning techniques for operating a larger laboratory.

As has been said many times, no one need apologize for the achievements of the American secondary school. Constant striving for further improvements has been the essence of our accomplishments. Definition of the purposes of secondary education is constantly being clarified and better understood all along the line by professional and lay people. It is our belief, as we enter this second year of experiments or studies in staff utilization, that these purposes will be translated into changed patterns of content, instructional methods, and school organization.

Summer Staff-Utilization Workshop Enables Lakeview Junior-Senior High School Teachers to Plan Studies

DAVID W. BEGGS

THE dual purpose of the staff utilization study at Lakeview is to consider ways of conserving professional teaching time and to explore new methods of improving instruction. With a grant from the Ford Foundation, through the auspices of the National Secondary-School Principals Association and the Illinois Secondary-School Principals Association, a summer workshop was held in June, July, and August of 1959. Through the 1959-60 school year, periodic evaluation and discussion meetings will be held. (This is the second grant made to Lakeview teachers; the first was for a similar workshop in the summer of 1958.)

In the final analysis the work of this project can only be measured in terms of the beneficial effects it will have on the educational program; however, the teachers who engaged in the workshop report they received stimulating professional experiences. At this point it can definitely be concluded that those who participated in the workshop considered it an outstanding and rewarding success. The workshop teachers met to consider these four broad problems and to work out individual projects in their separate subject matter areas:

1. How can professional services be utilized better?
2. Are there new patterns and approaches to instruction which would benefit students and conserve teaching time?
3. Can our building facilities be utilized better?
4. Are there some projects which can be worked out in the summer which will save time during the busy school year?

Not only is the workshop group giving consideration to these questions, but also the entire faculty will give consideration to these problems during the academic year. A final report will be prepared in April 1960 to summarize the project's conclusions.

Large group instruction, that is one teacher meeting with sixty to 110 students, is one of the experiments that Lakeview teachers will employ as a result of this project. This will be done with a selective group of stu-

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dents on the junior and senior levels. It is felt that the maturity of these advanced students will make it possible for them to profit from these carefully designed classes. When one teacher is teaching the large group, the other(s) can be grading papers, working with individuals or, if successful, teaching other classes.

The employment of teacher unit-specialists—teachers who specialize in certain aspects of a course and teach it to all classes—will be attempted, also. The idea is to allow teachers more time for concentrated preparation by limiting the areas of instruction. Teacher "A" will work with one group of five sections while Teacher "B" is working with another group of five sections. When each teacher has completed his area of instruction, the teachers will trade schedules and classes, teaching their units to other classes.

Some devices for recording student achievement and making cumulative records of individual work have been developed. These are intended to save teachers' time in doing clerical work and in improving instruction by making the work done by a student on one level related to his work on the next level. For instance, a cumulative reading record from grades 7 through 12 will be kept to avoid duplication in student book reports, to help the teacher know where the student "is" in his reading development, and to give the student a motivating sense of satisfaction in seeing his progress.

In mathematics a new sequence of courses has been developed for the above-average student. These courses avoid unnecessary duplication and are geared to move at a rate to allow students to enter college with advanced standing. Only during a summer workshop could such a program be so fully and carefully developed.

The English area has been strengthened by the establishment of a three-track program from grades 7 through 12. This program is complete with teaching units, learning activity suggestions, and references for students and teachers. Again, this is the sort of effort which is almost impossible to accomplish during a busy school year.

The combining of small classes in the foreign language area with students of one and no years of language instruction can be successfully done if the right kind of prior planning is done. In this project many teaching aids (tapes, films, etc.) will be used.

In physical education a plan has been developed to study carefully the growth of students in a control class with special activity and in a control class with traditional activity.

The use of student assistants will be attempted in the fields of business education and physical education. The plan is to give business education students some practical experience in secretarial and clerical tasks. In physical education, selected seniors interested in becoming teachers in the field will work with a freshman class. Not only should such activity aid the students, but it should prove valuable to teachers who have heavy teaching loads.

Two research projects in the field of science have begun, one to study the correlation between success in science project work and general intelligence and the other to study the course offerings in grades 7 through 12.

In addition to the projects already mentioned, a number have been undertaken to improve instruction by doing the kinds of things which are not, or have not, been done in the past during the school session. Included in these are consultant lists of community resource people, a filmstrip descriptive catalog, a noon-hour film program, *etc.*

All of these projects have been developed within the framework of the present school day and within the bounds of accepted present secondary-school practices. Once we let our minds wander over the secondary school as it could be, we think of many new patterns: irregular school days with block-of-time instruction, an extended school year, widespread use of teaching aids, para-professionals supporting the certificated teacher as assistants and as study hall monitors. Perhaps we will find we can educate more students in a better fashion and for less money by the use of these new procedures and practices, or perhaps these would prove damaging and costly. Until we have the definite answer based on sound research, we cannot discount them; we must consider them. Meanwhile, at Lakeview we will continue to believe that competent teachers are the best source of answers to the problems of staff utilization and instructional improvement. Nineteen studies are underway in 1959-1960.

English and Science Studies in Mattoon Senior High School

H. A. CLAWSON

TEAM TEACHING IN ENGLISH

THE English project in staff utilization through team teaching involved three classes of sophomores scheduled simultaneously, and three individual teachers, each in individual rooms. The student assignments were on a regular chance basis. The teacher assignments were carefully planned and scheduled. The three classes were considered the "group," the three teachers the "team." The entire group assembled in the library to receive an introduction and overview to each of the various units in the year's work. The team members rotated the responsibility of presenting the unit to the group according to their talents and tastes.

A pre-test administered to the group became the prime basis for dividing them into sub-groups for instruction in the work of the unit. Naturally, the work of the unit was interpreted in a different light for the upper group than it was in the lower group, and so on. Again, the team members assumed leadership for the high, average, or low group according to their individual interests, capabilities, and normal rotation procedures.

The youngsters were never frozen in a sub-group, but could (and many did) move as their motivation and actual mastery of the material in hand progressed at an accelerated pace or bogged down unsatisfactorily. Obviously they were not frozen from unit to unit, either, as each new unit of work precipitated an assembly of the group, the preview, the pre-testing, reassignment to sub-group, and so on.

The youngster's learning was of great concern, naturally and their reaction and opinion of great import. The teacher's attitudes and interest and reactions were carefully recorded for evaluation. Thus the tenth-grade English course was administered for these particular sophomores.

The Specific Problem

The purpose of this particular study is to help answer these questions: Does the use of a team approach to tenth-grade English classes result in an equally effective learning at least as does the conventional classroom organizational setup while more effectively utilizing the abilities and skills of the teachers? Does this approach point the way to improved

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staff and building utilization without the outlay of large additional sums of money for instruction?

The feeling at this point is that certainly there are ways and means of improving our educational processes and offerings through experimentation, and that the use of a team for large groups offers one of the most likely ways of hitting upon improved procedures. There must be newer and fresher approaches to teacher-pupil relationships, ratios, timing, and other "set" procedures.

Some Measures of Success

The team approach to the teaching of tenth-grade English is practical. It worked. It can be done and is being done in our school today threefold. That is not to say we have worked out all problems and achieved perfection. The principal's selection of the team members has been shown to be excellent. The actual idea of the team has been carried over, still on an experimental basis, to some social studies classes and a girls' physical education group.

The physical aspects of the project were of immense proportions. The location, size, and proximity of the three classrooms involved were important factors. The use of the library as the assembly room for the group left much to be desired as to seating arrangement, blackboard facilities, blackout effect for films, and actual access to the room.

Testing, while vital to the program's evaluation, was limited in effectiveness. Standardized tests did not, in fact could not, cover exactly the same material and objectives being taught. In teacher team's opinion, just the task of taking several standardized tests at the onset and close of the term caused a noticeable decline in the amount of interest being shown for the class. Also, this same testing cut deeply into the time normally used for review at the end of the term.

A very real problem for the team originated with the matter of grading. As a student most likely would have had more than one unit of work during the grading period, so he would have had more than one teacher. This certainly complicates grading. Further, the breakdown of the year's work into units did not coincide time-wise with grading periods. And still further, due to the very flexibility so much desired, students did change to another sub-group *during* the unit's work which meant assessment of student progress by more than one teacher.

Another very real problem is the great amount of extra time needed for the team members to work out the grading referred to above, to hold conferences for coordination purposes, and other needed planning. The team would certainly have appreciated assistance from a teacher-aide and/or clerk to enable them to devote less time to routine and more time to planning and coordinating.

The team approach implies the utilization of an outstanding experienced teacher as the leader or master teacher of the group. This concept we were unable to live up to fully, and the resultant losses are in



Three sections of Sophomore English are being instructed by the senior member of the team. The physical facility needed for this large group is met by making use of the library with a seating capacity of 125. The three sections are under the direction of one teacher, leaving the other two free and available in a supervisory capacity while the lecture is going on or free for planning. These three sections were all scheduled at the same time during the school day.—Mattoon (Illinois) Senior High School

great measure itemized above. There was no opportunity for visitation or supervision by the master teacher once the group was divided into the sub-groups. Each teacher had a responsibility in his own room and had to devote full time to that sub-group to which each was assigned for the unit.

Findings to Date

As part of the required control of the experiment, the teachers were asked to keep a "diary" of their own feelings, attitudes, ideas for change and planning in the future as well as anecdotal items on class or student behavior. This latter was in addition to actual statistical sampling of student attitude.

The teachers of our team are very, very enthusiastic about the whole idea, if not some of the more detailed and bothersome trivia accompanying it. Constantly and persistently running through the team's evaluation, through the drawbacks and handicaps, is a note of sense of accomplishment, a desire to continue this type of study, and a concern over the future of teaching students in this fashion.

Statistically speaking, no conclusive findings regarding pupil learnings are available to date. On the basis of test scores and analyses made, there is some indication that the experimental group learned less English than did the control groups (regular classes under same teachers). This is on a standardized test basis.

Further observation shows the experimental group generally to represent a lower measured intelligence, although this could not be plotted due to lack of consistent measuring devices. These conditions being true

could or could not go a long distance in explaining a relative lack of progress shown by the experimental group.

As to attitude, two results were shown. The higher the student's ability (and better the grade he received), the higher he rated the method of his being taught. On the other hand, the experimental group as a whole rated this teaching procedure less favorable than did youngsters in conventional English classes under the same teachers. An examination of the comments on the attitude scale discloses two things, however; high-school students tend to rate their like or dislike of the subject matter, the teacher's personality, the room in which they are assigned, the hour at which this class fits in with their daily schedule, and other factors rather than the asked for rating of a teaching method. Perhaps sophomores are unable to isolate and view objectively a "teaching-method" as a concept. Also, students at this age are a little upset by a change in the daily pattern of school as they have known it, and resent this "rocking the boat." It seems to penetrate their security or sense of well-being somewhat.

Teachers' reactions have been stated above and are most favorable. Cost-wise, there seems to be no real appreciable difference on the limited scale that the idea has been used to date. Predicating future costs is difficult and dangerous, but perhaps one can state that any great cost involved will center around the physical aspects; i.e., the alteration of buildings or construction of new facilities.

Next Steps

The next step has been taken, or is being taken now. Sophomore English this year includes not one but three experimental groups. Social science finds two groups in operation: one in United States history, the other in senior economics. Still another is being conducted in girls' physical education.

We strongly believe there is much merit in this newer concept of teaching secondary students, and we hope to explore the possibilities to the limit of our ingenuity, physical facilities, and teaching skills. We certainly hope to have more tangible results on the validity of this belief we hold.

SCIENCE ORIENTATION

The second part of our Staff Utilization project was a pilot study in the area of science. We know that for many of our students, biology is the terminal course in science. This for Mattoon students means that no science is taken beyond the ninth grade (biology is taken at the ninth-grade level), except for those who choose botany, zoology, physics, or chemistry. Among those who choose to terminate their science courses after biology, we may find a few who continue to acquaint themselves with a layman's knowledge of scientific events and who keep themselves informed through radio, T.V., magazines, and newspapers of scientific developments and their significance. But is this enough? How many stu-

dents shrug it all off with the attitude—Science and all that goes with it is for the very few.

Hypothesis

1. Eleventh-grade students with no professed scientific interest will enjoy and be interested in lectures, well presented, *about* science.
2. Attitudes of these students can be changed by these lectures.
3. Scientific attitudes can be developed.
4. These lectures will serve as a means of orienting study about science and the impact of science on everyday living. It will give them a layman's vocabulary of scientific terms and cause them to use the "scientific approach" in the solving of their problems.

Conditions and Limitations

Population of study. We chose the junior class. Twenty-five students were selected at random from a study hall meeting from 9:00 to 10:00. They were juniors not enrolled in either chemistry or physics. These conditions were presented to them:

1. They were to report for a lecture or test once each week for one hour.
 2. They would be given one quarter unit of credit if they attended and participated in the testing and evaluation.
 3. There would be no regularly assigned homework, but they would be encouraged to read, and further their knowledge in the areas covered by the lecturer.
 4. They would not receive a grade.
 5. They would evaluate each lecture, expressing their likes and dislikes.
- One section of chemistry students, one section of physics students, and a junior English class were used for a comparison.

Getting off the Ground

After a series of testing, we were ready to *expose* our class to the very best in teaching. We have seventy staff members, all as potential teachers of this group of 25 students. Each staff member chosen was to be paid \$15 per hour lecture. If it conflicted with their regular class, they could either bring in their class to hear the lecture, or we would employ a substitute for \$3. With some definite objectives in mind we chose our staff for this class, who, because of special training or special ability, would be able to give presentations science oriented in such a manner as to stimulate and challenge the students. The sky was the limit as to techniques they might employ. We gave them the topic, along with a clear set of objectives. We hoped to broaden the experiences of these students in the area of science and to help them see the impact of science on their lives. Here are illustrative topics, and the staff member chosen:

"The Next War".....	Instructor..	Major in ROTC
"Exploration of Space".....	Physics Teacher	
"The Impact of Science on Society".....	Social Science Teacher	
"A History of the Universe".....	Biological Science Teacher	
"Science as a Vocation".....	Guidance Director	
"Nuclear Energy".....	Chemistry Teacher	

Evaluation of the Project

Before we started our series of lectures, we had three full hours of testing. At the end, we had 4 hours of testing. Pretests used were: the *Kuder Interest Inventory*, an attitude test, and an achievement test—general education development representing growth as to science awareness—*Sequential Test of Education Progress*. Post-tests used were *Kuder Interest Inventory*, an attitude test, an achievement test—*S.T.E.P.* (same as above except form R.M.)—a list on critical thinking (*Watson-Glaser*), and a subject matter test (designed by the instructors). At the end of each lecture, the students were given an opportunity to rate the lecture on a nine-point scale. They were asked to make comments both favorable and unfavorable.

Results

A *running diary* of the project was kept. This is an excellent way to see the mistakes, and to point out the good features. One person was placed in charge. He was present at each session. The teacher who was to lecture had no administrative details such as attendance, or testing—all he had to do was to fill one hour with the richest kinds of experiences for these students that he was capable of doing. The rating scale was another valuable and interesting piece of data. We had a total of fifteen lectures. The lowest rating was a 5.6, and the highest was an 8.2. This meant that with five as a midpoint, all lectures were “satisfactory” on an average.

We did get some surprises. We used *Kuder* to test scientific interest before and after the course. We found there was no significant change in interest. This we suspected. By the time students are in the eleventh grade, their interests are pretty well defined. We probably did little to change a student's interest from one field into the scientific field. But we also measured the attitude of the students in three areas, both before and after. These three areas were on scientists in general, advanced science courses, and this orientation course. Here we came in for a surprise. Students' attitudes about scientists did not change. They pretty much know what a scientist does, and have a rather positive attitude and respect for them. We expected them to have a greater tolerance for advance science courses, such as chemistry and physics. *This was not the case.* They actually tended to become more negative. It would appear that after an exposure to some of the material, and areas of science in more advanced science course they were even more certain it “was not for them.” I am not sure this is bad. It appears to have crystallized their thinking. Another surprise was their objections against the orientation course. While their ratings on each lecture remained well into the favorable area, they became more critical of the demand put on them to meet the hour per week. It appears that perhaps the course should terminate before the students go into their last month of school. With pressure on them for examinations and with a new teacher each session, the course should not drag out.

Did it Work?

This is a fair question to ask of the entire project and from our point of view the answer is YES. We were well pleased; in fact, so well pleased that we are running it again during the 1959-60 school year. I answer yes also on the basis of the results of our standardized tests. In relating the science orientation class with our comparison groups on the S.T.E.P. test, we found the orientation class showed a positive gain over those not enrolled. Do not conclude I would substitute this course for chemistry, physics, botany, or zoology. I certainly would not. But it indicates the need to look for something for those students not in these courses. The Science Orientation Course may be part of the answer.

One of the things we hoped to do was to cause this group to do some critical thinking. We compared the Science Orientation students with non-science students in this area by the use of *Watson-Glasser Test* of critical thinking. Based on the results of this test, it would seem the oriented students rated far higher than the non-science students. In comparing the Science Orientation students with the juniors in a physics course, we again find the statistical level of significance is over the .05 level. Obviously, there is much analysis to be done before we can claim credit on the measure of critical thinking caused directly by this Science Orientation Course, but again the results are very gratifying.

We are going to change a few things this next year. It would seem that a teacher should be in charge of the group and be responsible for either lecture or discussion every other week. This would tend to give the students an opportunity to ask more questions and would give more continuity to the entire course. Another change contemplated is a round-table discussion of all those faculty members who will be participating. They in a sense need "orienting" also.

You Can Do It In Your School

Without a doubt on your staff are teachers who, because of special interests, experience, or training, are qualified to participate in a science orientation course. This course would be about science and its role in the lives of those students whom we might call the "non-science" students. It gives your teacher an opportunity to give an outstanding performance before a very critical group. Incidentally your teachers will benefit from the sincere evaluations. It will help them improve their teaching methods. The cost is small, and the returns both in the way of better informed students, and improved and top notch teaching are well worth the investment.

Curriculum Enrichment in a Rural County Unit School System Through the Use of Material Aids to Instruction, Pope County Illinois

J. H. HOBBS

OUR program has not been carried out on the district-wide plan as originally conceived. It was decided at the beginning to limit it to Pope County High School which serves the entire county with an enrollment of 255. If the emphasis on use of material aids proved successful in our high school, the elementary schools could be included later.

Previous to inauguration of the project, use of material aids was almost nil. By the term material aids, we mean audio-visual aids, but we also mean much more. It includes posters, mounting of tear sheets, use of bulletin boards, and anything else that can be built or purchased to use in our teaching. We used a few movies, an occasional filmstrip, and some magazine or newspaper articles. Pictures were occasionally posted on the limited bulletin board space. Equipment consisted of one movie and one filmstrip projector. Only one room was equipped with shades for using the equipment. The library had insufficient shelving, a very limited number of fiction and reference materials, and could not be looked upon as adequate in any sense of the word. Entering freshmen, many of whom were products of one-room schools, were far below ninth-grade reading ability. Teachers made little use of local resource personnel since they had no record of who was available and when.

Southern Illinois University agreed to co-operate and aid in every way possible. Dr. Gordon K. Butts of the material aids department and Mrs. Fletcher of the library department have been very valuable as consultants during the pilot year of our study. The University granted Dr. Butts time to spend at our school when his services were needed. He is largely responsible for what success we had during the first year. He held a two-day workshop for all high-school teachers just prior to the opening of school in September 1958. One of the principal values of the workshop was the introduction to sources of material aids available at little or no cost to the teacher. Proper use of the materials after they are obtained also made up an important part of the workshop. We were told, and I believe convinced, that the mere fact we used material aids in itself was not necessarily worth while. They must be used properly.

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From the beginning, it was obvious some teachers feared the project would mean more work for them. There were also some of us who could have been classed as "doubting Thomases." This can be better understood when you realize that all teachers' salaries were the state minimum and no one had more than one free period each day. We were told, however, that the success or failure of the project would depend entirely on all members of the faculty. The pre-school workshop proved valuable in convincing us that our work would be easier and not more difficult if we learned the proper use of material aids. I believe we were also convinced that we could do a better job of teaching as well as make our teaching more interesting.

The decision was made at the beginning that teachers would not be *required* to use more material aids, but that they would be made available. It would take some time for all of us to become acquainted with the materials.

One of the first projects was the completion of a file of resource personnel in our own community. The name, address, phone number, dates available, education, and experience were information included in a form mailed to these people. This information was mimeographed and a copy placed in the hands of each teacher. We learned before the year was over that, once we begin to make use of local resource personnel, the habit causes us to notice and use qualified people who are visiting in the community as well. A former resident, now living in Alaska was contacted during a home visit. He gave some very interesting lectures to the social studies classes. One of the graduating seniors who listened to the lecture became enthused and is now living and working in Alaska. A visiting scientist from Los Alamos accepted an invitation to speak to the physics class. Not only was his discussion interesting but also his advice and counsel to the students concerning the opportunities in the field of science made an impression. Although it is difficult to estimate the value of such help, we believe it is very real.

To be more specific, let me discuss a few uses of material aids that were purchased or constructed during the year and used in classroom teaching. There is nothing original about the ideas, however, they could not have been obtained before simply because most of the materials illustrated were made available through the grant received.

1. Students in home economics used pattern shells in a clothing class on pattern study. Cloth swatches for color study and harmony of colors are examples of other material aids used. The color swatches are used in general science classes also for study of color.

2. Typing students copied from a flannel board. A complete letter form was posted at the time the picture was made. The math teacher also made good use of flannel boards; however, a word of caution might be in order—cheap material is wasteful since both teacher and students become disgusted and fail to use that which requires more work and effort than is feasible.

3. Book shelves were built by our custodian and peg board used as the back of one to display special books in the library. Additional bulletin board space was provided in the library also for displays.

4. The physics class listened to taped recordings of oral reports by members. A buzz board proved useful in learning terms and other materials.

5. An agriculture class used a filmstrip on welding. Equipment was used for demonstration at the same time the filmstrip was shown.

There has been an increased interest in the beautification of the school grounds on the part of students and teachers. The agriculture classes have planted flowering peach and flowering crab apple trees. More than four dozen beautiful rose bushes along with many shrubs have been set out along the front of the school. We had an outstanding Christmas display outside during the Christmas season.

You might ask, "What does this have to do with use of material aids?" The reply cannot be certain. However, these things did not happen until our project began. We think it is an example of a transfer of interest when a group undertakes a project. Certainly, we have one of the most beautiful schools and grounds in one of the poorest areas of the state of Illinois; of this we are proud.

The remedial reading program was inaugurated at the beginning of the 1958 year. The degree of success is rather difficult to evaluate in such a short time. The *Readers' Digest* program was used in the freshman and



Pope County, Illinois, students use tape recorder to gain additional knowledge in biology.

sophomore classes. In a rural community like ours where many of the students have limited access to magazines at home, this program is excellent. The teacher supervised the program as she chose although it is rather self-contained.

Students seemed to be enthused with the program. The Annual staff purchased a TV set for the school. It is doubtful the money would have been used for this purpose had they not developed an interest in the use of material aids. The school board furnished additional books and materials for the library and encouraged a member of the faculty to take courses in library science. Perhaps one of the most important values of a project such as ours is the fact that it motivates those affected to think, and, through it, improvements in other areas are realized.

Our project was originally planned to extend over a four-year period because we felt that this was a minimum time in order to evaluate the success or failure. On the basis of the testing program which we intend as a part of the evaluative process, there is a definite indication that we are meeting with some success. Just how much success is uncertain and we are not sure of an accurate method of measuring it. Most certainly it has served a worth-while purpose in motivating teachers and students. This again, however, is difficult to measure.

We also believe that the simplest and surest manner to initiate a good material aids program is to give it emphasis and publicity. With limited finances and a crowded schedule for teachers, you must expect the program to move slowly. In fact, it is perhaps better if teachers would place emphasis on one aspect of the program. By that I mean one teacher to do special work in filmstrips, one in wet and dry mountings, one on bulletin boards, *etc.* This should help to eliminate some confusion. When you attempt to do special work in the audio-visual and other material aids at the same time, you must cover a great amount of territory. The only appreciable cost will be in purchasing projection equipment which most schools already have. Most materials used are negligible as far as costs are concerned. The enthusiasm and cooperation of the faculty is absolutely necessary for success of any such project. We held the two-day workshop partially for this purpose and feel that it served that function well.

Future plans are for a continuation of the same; *i.e.*, an emphasis on the use of material aids in teaching. We have just scratched the surface, but we are beginning to learn that there is much truth in the old, old quotation, "One picture is worth a thousand words." We hope to improve on our filmstrip and record library. We have supplies available in the library for teachers to do wet or dry mountings of tear sheets. More emphasis will be placed on use of bulletin boards. We are looking forward during the present school year to the improvement of the curriculum through the use of material aids.

Team Teaching and Use of Recorders in Taylorville Senior High School

WILLIAM HURLEY
ALDO CERESA
ADA SONGER
LOUISE PACOTTI
AILEEN CLAWSON
BYRON CHRISMAN

ONE of the most encouraging outgrowths of our staff utilization studies is the development of an experimental attitude on the part of all of the teachers associated with the program. By taking advantage of newer material aids to instruction, we have attempted at times partially to replace teacher time and energy, and at other times to supplement the efforts of the teacher. At all times we have been cognizant of our professional obligation to enrich the quality of instruction given to boys and girls.

Teacher morale has been high and a greater degree of effectiveness in teaching has been apparent. Evaluation has been our biggest problem in our studies so far. We have attempted to evaluate from both statistical and verbal inferences. The professional opinions of our staff members contained in this report are submitted in a frank and concise manner.

USE OF AUDIO-VISUAL AIDS IN SOCIAL STUDIES

American Problems is a year course required of all senior students at Taylorville High School. The 145 seniors in the 1958-59 class were divided, without reference to ability, into five classes for this course. At the beginning, this project was to involve:

1. The use of teacher-recorded tapes in various phases of the course work, particularly in the study of the United States Constitution and the Constitution of the State of Illinois, both of which are included in the content of the course.

2. The use of commercial tapes and records to supplement the materials presented.

William Hurley is Principal, Aldo Ceresa is Social Studies Department Head, Ada Songer is Business Education Department Head, Louise Pacotti is a Latin teacher, and Aileen Clawson and Byron Christman are English teachers—all in the Taylorville Senior High School, Taylorville, Illinois.

3. The bringing together into a large group, whenever feasible, two or more sections for hearing lectures, listening to recordings, viewing films and filmstrips, and for testing purposes.

These innovations in the teaching of phases of the American Problems course were undertaken primarily to discover whether or not:

1. The teacher, by using tape recordings, could be freed during the class periods to plan and prepare further activities, give individual help to students, grade papers, locate suitable materials, or work on bulletin boards and other display materials.

2. The teacher could, without loss to the students, adequately teach larger groups of students.

3. Students could develop greater competency in note taking and could distinguish pertinent facts when recordings were used as well as when conventional presentations were made.

4. Discussions were as effective with a larger group as they were with a smaller group.

The initial activities of the teacher centered around the recording of tapes. In an attempt to orientate the students to learning from tapes, the procedure to be used was explained. An attempt was made to set up questions to which the answers could be found from the material presented on earlier tapes to which the students had listened. This practice was discontinued and later tapes were used in order to develop independence on the part of the students.

The tapes had many imperfections. Noises and sounds of which the teacher had been unaware were amplified on the recordings. It was found that it takes a great deal of time to record a tape and that erasing was often necessary. The students were more apt to be critical of the imperfections that showed up on the tape than they were of a lecture. It was found, too, that the students at first resented the impersonality of the recording devices. Adjustments to such devices occurred after the novelty of the innovations began to disappear.

In the few attempts made to combine two sections for explanations and lectures, it was found that students reacted favorably to the situation and that, on the basis of objective tests, they did as well as students in the individual sections and as well as the members of these combined groups did on materials presented to them on a single class basis. Scheduling rigidity, however, made the combining of groups difficult and often impossible. It was found that more individual attention was possible to students in the area of note taking and the distinguishing of pertinent facts when tapes were being used, and that there was considerable improvement especially among the more gifted students.

Our plans for carrying on the experiment in American Problems during the 1959-60 school year have been expanded in order to eliminate some of the physical difficulties encountered and also to involve the English 12 classes in the project. We are proposing the following procedures:

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Our plans for carrying on the experiment in American Problems during the 1959-60 school year have been expanded in order to eliminate some of the physical difficulties encountered and also to involve the English 12 classes in the project. We are proposing the following procedures:

1. The same seniors enrolled in American Problems the sixth period will be enrolled in English 12 the seventh period. Likewise, the students in English 12 the sixth period will be in American Problems the seventh period. These two groups, involving approximately 70 students, will be used as experimental groups for large-group purposes. This type of set-up will allow the two teachers flexibility in working with the two groups. They can: (a) meet their classes individually; (b) one teacher can take the combined groups for one 45 minute period while the other teacher takes the combined groups the next period; and (c) one teacher can take the combined groups for a double period of 90 minutes whenever the work of the class warrants.

2. Tape recordings and records will continue to be used in all American Problems classes to determine the effectiveness of such devices in both large and small groups.

3. All students enrolled in English 12 and American Problems will be given a pre-test at the beginning of school to determine proficiency in both areas. They will then be retested later in the year so that growth patterns in the experimental groups can be compared with the contrasting groups.

4. A study will be made in all English 12 and American Problems classes to determine student participation in class discussion. Here we will try to determine if there is any appreciable difference in student contributions in a large group from student contributions in a small group.

5. A time study will be made by the two teachers of the use of their time when freed from a class due to the combining of the experimental groups. This descriptive research of time utilization can be valuable in determining whether or not staff utilization actually results from this type of cooperative teaching.

6. The American Problems classes will be tested to try to determine differences in growth in subject mastery and skills, such as note taking. A comparison will be made between the experimental group and the contrasting classes.

TEAM TEACHING IN ENGLISH

At the beginning of the second semester, two sophomore English classes already scheduled for the same hour were selected to initiate an experiment in team-teaching. The two classes were somewhat homogeneous in that the highest and lowest ranking sophomores had been placed in special classes at the time of fall registration. Therefore, the two classes selected to utilize the teacher-team approach were largely "C"- "D" or average students numbering fifty-one. Fortunately a double class room was available with sliding doors which enabled the room to be used as two small rooms or one large room.

The course of study called for literature in the second semester, using *Adventures in Appreciation* as the text. The subject matter was divided into four units consisting of short stories, poetry, drama, and the novel.

Procedures

The first unit on short stories was presented largely in lecture form with one teacher in charge and the other in attendance. Some attempts were

made to conduct discussions in small groups with student leaders and recorders selected by the students. The techniques of role-playing and dramatization of stories were also employed.

During the second unit on poetry, the second member of the teacher team took charge. Choral reading, oral interpretation by students and teacher, and recordings were utilized as the unit progressed. After an introductory lecture on the background of drama given by one teacher, the class was divided into two homogeneous groups. This division was based on the scores of the students in the *Iowa Silent Reading Test*, the *Otis Quick-Scoring Mental Ability Test*, a short teacher-devised test, and a general test on ability to read and interpret drama. Each group was conducted in the usual classroom pattern with the exception that the groups were brought together for the showing of filmstrips and the use of recordings.

The last unit, the novel, was carried on in much the same fashion with a variation of the groups based on preliminary unit-testing factors. The teacher-team exchanged groups using practically the same pattern as had been used with drama. In the last two units, the better students did additional projects according to their interests and abilities.

Purposes and Results

The following were the purposes of the team-teaching approach:

1. To investigate the possibilities of offering the students a better understanding and appreciation of the course through combining the talents, enthusiasms, and abilities of the teachers and their combined ideas of emphasis.
2. To expose the students to both large and small class situations which should give wider experience than is usual in the traditional class-size group.
3. To utilize the abilities of the two teachers and provide them a better opportunity to use their time to the best advantage.

From the beginning the students appeared to accept the experiment open-mindedly. There was evident interest by both the teachers and the pupils in the greater variety of activities and personnel involved. We felt a definite sense of failure during the first nine weeks because of the inability to get the students to participate in class discussions. We attempted to compensate for this with panel and small discussion groups but found the situation was not completely overcome until they were divided into two flexible groups.

At this writing we have not reached any decision on the degree of accomplishment in the first of the purposes of this experiment; but we feel that we have been successful to a degree with the second and third purposes outlined above. We do feel that our success has been sufficient to warrant the continuance of the project.

Evaluating the results achieved by the experiment conducted during the past school year, the subject-matter achievements of the students were about what was expected. There was a definite indication of a

change in attitude on the part of the students as indicated by an opinion poll based on the Likert scale given at the beginning of the experiment, after the first six weeks, and at the end of the course, as shown below:

	<i>Beginning</i>	<i>1st 6 Weeks</i>	<i>Final</i>
Very Satisfied	2	4	10
Quite Satisfied	7	10	17
So-so	22	15	16
Quite Dissatisfied	9	12	2
Very Dissatisfied	9	8	4

The members of the teacher-team feel that the following points are worth noting. Larger groups are more difficult to motivate. The teacher's strong and weak areas are somewhat highlighted. Participating teachers must be receptive to the plan. It is felt that in case of illness on the part of one member of the teacher-team, the other member can carry on without any loss to the program which might be incurred in the employment of a substitute teacher. It was found that the flexibility of the program allowed for some homogeneous grouping with each unit of study. Although more energy is required to lecture to a large group and hold their attention, it is balanced by an exchange of ideas brought into the work by working as a team. It is felt that the course could be planned so that the teacher would be able better to utilize time by combining certain parts of the work, and, while the planning stages required more work this year, they should be less time consuming and demanding in the future.

TAPE RECORDERS IN LATIN

The tape recorder was used the second semester of the 1958-59 school year in an exploratory manner to determine how it might effectively be used as a teaching device in everyday classroom procedure. No attempt was made to conduct any research experiment that could be reported by definite statistical evaluation. The following information, then, is only a report of the types of uses to which the tape recorder was put and of the reaction to such uses by the classes and the teacher. Needless to say, both the teacher and the classes were novices in this type of work.

We offer two classes in Latin I, and two classes in Latin II. In all classes, the mechanics of the recorder were studied and the machine actually used by all students. As was to be expected, some students were quite intrigued and most anxious to use the machine; others were hesitant and required more time to become accustomed to a matter of fact approach to its use. Once familiarity with the mechanics of operation was fairly well established in all classes, we proceeded to try some study situations involving the machine's use.

In the Latin I classes, vocabulary study was tried first since an adequate knowledge of basic vocabulary is one of the most important goals of first-year work. Each day's new vocabulary words were presented as usual in connection with the story and sentence work of the lesson; *i.e.*, in context. The tape recorder was used to give additional work on the words after their original introduction and a review by making the lists cumulative. Some of the tapes prepared were: (1) lists of Latin words (or English words) grouped according to parts of speech; and (2) lists of Latin words (or English words) mixed as to parts of speech.

In the use of these lists, sufficient time was allowed after the word for the class to respond orally in unison, orally as individuals, or in writing. Since the teacher was not involved in presenting the material, it was an advantage to be able to move around the room to observe each student. This procedure also made sure that each student was working with the tape. Also, the recorder could be set up for use ahead of time so that a good vocabulary review and drill could be accomplished in a short part of the class period. This was found to effect an appreciable saving in time, although the tapes required a considerable amount of extra time on the part of the teacher in their preparation. This extra work would probably be much less as a library of permanent tapes was built up. It is also the opinion of the teacher, however, that results would seem to justify the extra work as the class interest and enthusiasm was improved, which is not to be lightly regarded in the case of Latin I students.

In summing up the reaction of the class to this use of the recorder, we feel that the class liked the method and showed evidence of improved ability in vocabulary work. Part of this improved ability might be attributable to more study on the part of the students as the review and drill work was probably more frequent since an effort was being made to use the recorder. In any event, the level of class work seemed improved to the teacher.

At various times the following procedures were tried with the tape recorder but only in a very limited manner. Tapes were used for the study of case forms of nouns and adjectives, the tense forms of verbs, and the case required after prepositions. These studies were done, English to Latin and Latin to English. This type of study seems to have possibilities that can be more extensively developed in next year's study. A major problem was finding teacher time to prepare the tapes. Again, as in the case of the vocabulary tapes, if once a basic permanent set could be finished to correlate with the text material, this problem would be partially solved. It probably would be desirable always to do some tapes currently for specific areas in which a class needed work. The occasional use of the recorder for oral translation seemed valuable for motivation to improve work. The students did not like to have their poorer efforts recorded and did better preparation for recorded translation than for ordinary class work. Here again, the time element was the big drawback as the whole class had to be involved in the exercise.

TAPES IN OFFICE PRACTICE

At the beginning of the project and study on utilization of staff in our Office Practice class, the following purposes or goals were established:

1. To learn the potentialities of voice tapes and records as a means of instruction.
2. To discover whether tape recordings and the record player can be used effectively in teaching in an office practice class in order to relieve the teacher for the variety of tasks facing her in such a class.
3. To prove by scientific analysis that teaching with the use of mechanical aids produces as good gains in learning as teacher teaching.
4. To discover the attitude of the pupils and the teachers toward these mechanical aids.

The initiatory step taken was the preparation of some tape recordings. When these tapes were played back, the teacher's lack of experience in this phase was soon apparent. This year was spent in experimenting with recording the tapes and playing them back to the teacher and to the students. It was found that many of the instructions were not clear enough and that it was necessary to go into greater detail, otherwise many questions were left in the minds of the students. This would defeat the purpose of the project as the teacher would then have to be available to answer all questions. It is impossible to make an evaluation of this project at this point because it is really in the initiatory stage and is being continued this school year.

The Office Practice teacher reports that this project is proving to be quite a challenge and most interesting. It is her hope that the outcome will prove beneficial to other Office Practice teachers.

GENERAL APPRAISAL

We found the enthusiasm of our teaching staff mounting as we ended the first year of participation in the utilization of staff studies. It seems to be the consensus of the members of the teaching staff of Taylorville Senior High School who are engaged in the study that the greatest contribution made by the past year's activities is a better understanding of the many avenues open for exploration. A feeling of uneasiness has been dispelled and it is with much more confidence and assurance that we look forward in our continuing studies in this area during this 1959-60 school year.

University of Chicago Laboratory School Freshman Project Involves Team Teaching, New Faculty Position, and Regrouping of Students

ROY A. LARMEE

ROBERT OHM

INTRODUCTORY FRAMEWORK

CAN the school day be so organized and the school curriculum so constructed and implemented that the education of youth will profit from the disciplines of the various subject fields while accommodating student differences in ability, interest, and need? During the past several years a series of projects at the University of Chicago Laboratory School have involved experimentation with teaching teams as a part of the search for answers to this question. The Freshman Staff Utilization Project 1958-59, under the auspices of the Illinois Association of Secondary-School Principals, together with other similar projects at the school, has resulted in the introduction of teaching "teams" to the organization of teaching personnel on several levels, and has enabled the Laboratory School to clarify the concept of teaching teams and identify some of the factors which impinge on their successful operation.

The Freshman Project was predicated upon several basic assumptions that dictated experimentation with a "team" pattern of teacher organization. One cornerstone was the belief in the validity of having teachers qualified and expert in the teaching of the specific subject for each of the subject matter fields represented in the high-school curriculum. But strict subject-centered programs of instruction, by their very nature and by the nature of traditional patterns of teacher organization within our high schools, tend to minimize the importance of the specific day-to-day learning needs of individual students and sub-groups of students, and the varying demands of each teaching-learning situation. The "lock-step" concept of the same 25-30 students meeting each day at the same time, for the same length of time, with the same teacher in a specific subject area, and in the same room, carries with it the hidden assumption that

Roy A. Larmee is Director of Pre-Collegiate Education and Robert Ohm is Principal of the Laboratory School, The University of Chicago. They were assisted in preparing this report by Morton Tarenberg, Facilitator, and Paul Moulton, Jack Mendelson, Ernest Poll, and Robert Wallis, teachers in the project.

such a static employment of time and resources can fully take into account the constantly changing and dynamic requirements of the total teaching-learning process. The Freshman Project, and others at the school, have been predicated upon the assumption that *flexible* employment of all school resources can more fully meet the demands of dynamic teaching-learning.

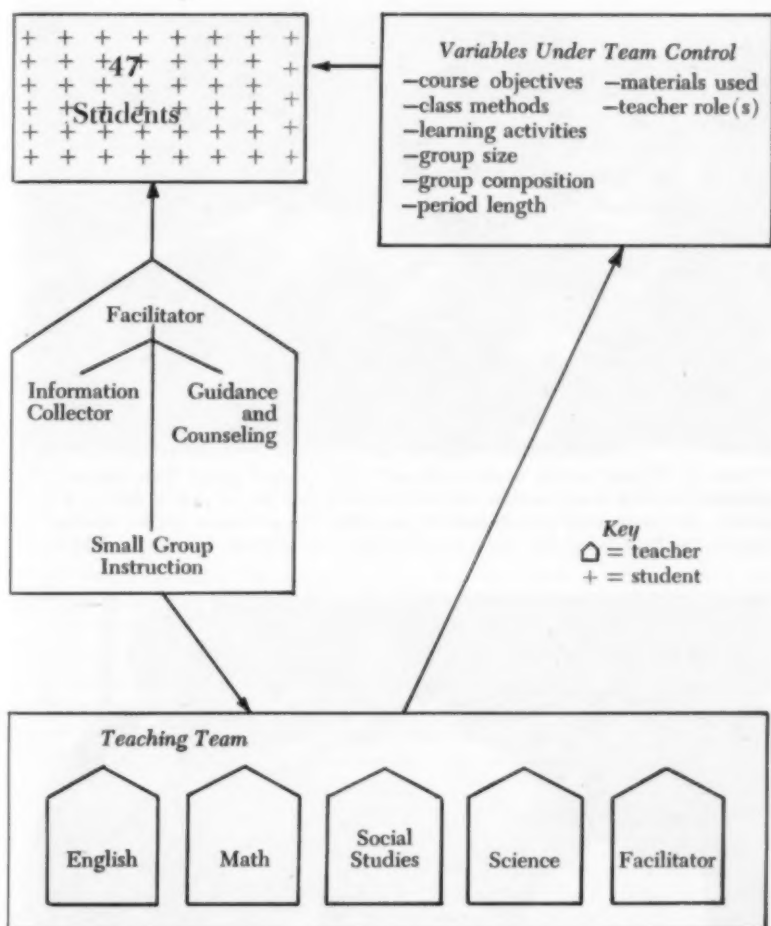
A group of forty-seven (of a total class of 125) freshman students were assigned to a five member teaching team. The team was composed of four subject matter experts—one for English, one for science, one for mathematics, and one for social studies. The fifth member of the teaching team, termed the facilitator, had specialized functions in the areas of guidance, small-group instruction, and administration. With the exception of the facilitator, each team teacher carried a normal load of instructional and other duties in the school. Although the students involved also took courses in physical education and unified arts, these subjects were not included in the project itself. The forty-seven project students were considered as one organizational unit within the freshman grade. Large blocks of time, up to three hours in length, were made available to the teaching team for work with these students during several days of the week. Within certain limits, the project team could (and, it was anticipated, would) re-group project students, re-schedule classes for different times of the day, make up groups of widely varying sizes, and alter the length of class periods.

Flexibility was built into the program in two ways: (1) large blocks of time during which all project students and several project teachers were available, and (2) the availability of the facilitator to work with small groups of students for instructional purposes.

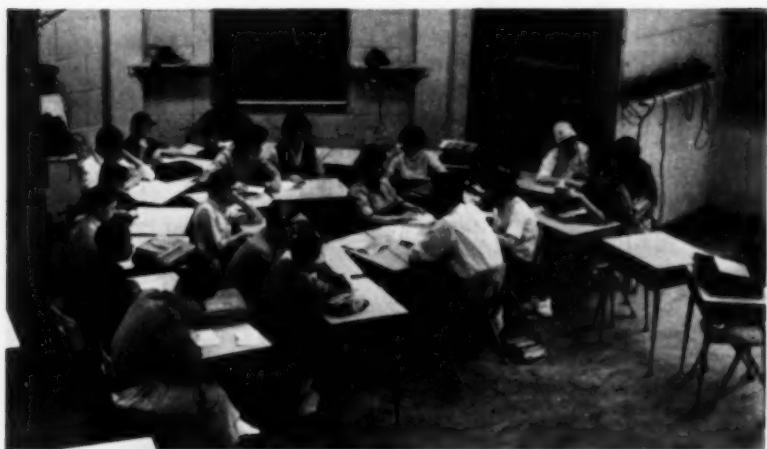
Since the facilitator was relieved of primary responsibility for a single subject area, it was believed he could bring to the teaching team a new kind of objectivity springing from an over-all concern for the total experiences of the students in the project. It was his responsibility to gather information about the learning needs of individual students, including their reactions to various school experiences and activities, and to recommend changes in operation to other members of the team based upon this information. The information was gathered by the facilitator in a variety of ways: direct observation of class sessions, interaction with students during small-group instruction and guidance and counseling sessions, paper and pencil questionnaires, parent-teacher conferences with parents of all project students, and meetings with groups of students chosen to represent their peers in informal "grapevine" sessions.

The research aspects of the project included the observation, descrip-

The teaching team was in control of a greater number and variety of variables impinging on students than is normally the case. It was the facilitator's role to direct the team's attention to the elements of teaching situations that are dependent on specific student learning needs. He had the additional responsibility of team deliberation.



tion, and interpretation of the changes in the total instructional process made by the team during the year. The initial question was whether it was feasible for a team of teachers flexibly to organize the school day along lines dictated by the needs of specific educational tasks and objectives. Further, we wished to explore, to a greater depth than previous projects had, the factors which determine successful team operation. The results of the year's work in this and other projects have clearly isolated a number of factors important to successful team work, factors that will make it possible during the 1959-60 school year to begin to evaluate the effect of one kind of team teaching on the depth of student learning.



Here the English teacher works with half of the project group. This smaller sized grouping allowed every student to read aloud a portion of poetry during a class period. The close seating arrangement, including the proximity of the teacher, enhanced the purpose of the activity.—University of Chicago Laboratory School



Each project student had his own mail box. Thus a given teacher could get printed information to all members in the project group even on days when that teacher did not meet with all project students. The mail box system was particularly helpful in eliminating class time ordinarily used for returning assignments and making announcements that could be conveyed as well or better in printed form.—University of Chicago Laboratory School

SUMMARY OF OPERATIONS

What changes did actually take place in the team's operations with students? What deviations from a "normal" program of instruction did occur? What things were done with students that could not have been done under a traditional pattern of organization of school resources?

Variations in group size. Although the size group most frequently used was that of about twenty-five students, there occurred variation that ranged from three students to all forty-seven.

Small groups. A frequent motif was the use of the facilitator with groups ranging in size from three to fifteen students.

For a period of one month, all forty-seven students were divided into work groups of four and five students in math. Students were expected to work in these groups on their own areas of math weakness. The large number of these small groups necessitated the use of more than one teacher and the facilitator worked intensively with three of these sub-groups.

Subsequent to the initial grouping in math, a small group of nine students who still exhibited continuing difficulty with the math program were assigned permanently to the facilitator for specialized instruction. It was felt that these nine students needed a smaller group in which they could have closer contact with a teacher, ask more questions, and work more at their own speed in correcting their fundamental math difficulties.

A group of five students was assigned to the facilitator for a period of three weeks for science. These students exhibited great difficulty with the science program, specifically in the areas of choosing appropriate goals and appropriate lines of inquiry to reach these goals. The group spent the total time with the facilitator planning a unit in astronomy, constructing suitable activities, carrying out their plans, and evaluating their work.

During a unit on English grammar, it was discovered that a number of students were progressing through the unit at a much more rapid pace than most of the other students. The bulk of the class needed to spend a great deal of time carefully working and re-working assigned lessons with the constant aid of the English teacher. Not only was this difficult to accomplish with a group as large as forty-seven students, but in addition such activity would have been a stultifying waste of time for the more rapidly moving students. Fifteen of those students were assigned to the facilitator for a period of three weeks. They proceeded to finish the grammar unit with a minimum amount of teacher direction, and completed a short literature unit in addition. The English teacher continued working in a highly structured fashion with the remaining thirty-two students.

During another English unit, the total group was split into sub-groups of six and seven students. Each sub-group had the responsibility of

converting a short story into a dramatic presentation. Here again the facilitator worked with a number of these groups to aid them in the planning and execution of the assignment.

During a biology unit in science, sub-groups were given the responsibility of choosing and investigating different problems relating to vertebrate evolution. Each group was to report to the total class on the results of its investigations. Such intensive group work required the almost constant aid of a teacher. Once again the facilitator provided an additional teacher to work with these sub-groups.

The facilitator worked with individual students and small groups of students during their regular daily study periods. In some instances the work was of a remedial nature while in others it entailed helping students to plan projects and to clarify the meaning of assignments. For example, during two study periods, a group of five students approached the facilitator for help in constructing outlines as part of an individual project assigned in science. The two periods were spent discussing the uses to which outlines can be put; students clarified their perceptions of the assignment in the process.

In the after-school conference hour, the facilitator also worked with individual students and groups of students having difficulty in the various subject areas. This was done by all subject teachers in addition, with the exception that subject teachers also met with students in their non-project classes during conference hours.

Although the following occurred only once during the school year, it is worthy of pointed reference, since it suggests the full extent to which flexibility can be used. A three-hour block of time followed this schedule:

8:45-9:15

Each of four sub-groups of twelve students met with one member of the teacher team to draw up lists of important items that could be looked for in a social studies film that was to be shown that morning.

9:15-9:50

Showing of a social studies film, on the culture and history of Spain, to the total group.

9:50-10:00

Break

10:00-11:30

Individual work by students on an assignment given jointly by the social studies and English teachers: write a short story accurately using some place in Spain as the setting of the story. During this time the individual work was supervised by the facilitator while the science and English teachers met privately with individual students to evaluate their work to date in science and English.

Although small groups were used for a variety of purposes, all of these purposes can be classified under the same general heading: small groups were used whenever possible for activities that entailed a great deal of communication and interaction among students and between students and teacher. This was the desired setting for group planning, intensive group projects and inquiry, and the clarification of ideas and concepts through discussion. Some of the small groups that met were homogeneous in composition for some particular factor, such as exhibiting low ability in a particular skill or needing help in choosing work objectives. Other small groups were pointedly heterogeneous as regards some particular factor, such as achievement or leadership ability. Some small groups were constructed with an eye toward eliminating or avoiding personality conflicts between certain students; for other groupings this factor was not used in the determination of composition.

Total group instruction. The total group of forty-seven students met frequently as a "class" for a great variety of purposes. Figures for the whole year indicate that each student had an average of approximately one total group class session to every four class sessions with a group of twenty to thirty students. During the last five months of the school year, social studies, science, and English classes of all forty-seven students met on a regular once a week basis. In all likelihood, this pattern would have been expanded even further had total flexibility been available to the team during all days of the week.

Although the large class was used for a great variety of purposes, the project team felt the more successful sessions could be classified into two main categories: (1) the taking of tests and quizzes by students and (2) relatively formal presentations of information and explanation to students. Both categories of activities entail a minimum amount of interaction and discussion among students and between students and teacher. For those activities which necessitated a great deal of such interaction and two-way communication (project planning, discussion, evaluation) the project team felt that even "normal" classes of twenty to thirty students were frequently too large, and subsequently classes of greatly reduced numbers were used for these activities whenever possible. The list of total group activities which occurred during the year includes:

1. A one-month combined social studies-science unit on "Weather and Climate." During this unit the total class met for periods two hours in length each day. The science and social studies teachers alternated in the handling of the large class. Weather and climate were approached from two different yet related points of view: understanding weather and climate as phenomena of the physical world, and understanding the relationships between human activity and climatic patterns;
2. Lectures in all subject areas included in the project;
3. Films in social studies, science, and math;
4. Visiting speakers in social studies;

5. Student presentations in science and English;
6. Poetry reading in English;
7. Recordings of folk music in English;
8. Demonstrations and experiments in science; and
9. Tests and quizzes in all subject areas included in the project.

Teachers and students alike felt that large group discussions were largely unsuccessful. One teacher, however, did achieve some excellent results by seating the total group very close together and actually placing himself in front of and almost within the group itself. Large-group planning activities were avoided altogether.

In addition to the above listed large-group activities, the total group met once a week in a home-room period with the facilitator. Again, because of the lack of success of large-group discussion, these periods were rather formal in setting and were confined largely to reports from the group's representatives to the various all-school organizations. The use of large-group instruction brought into focus a number of important pieces of information and some consequent insights:

Identical and near-identical presentations were given to the total project group and to "normal" size non-project groups. When tests were administered to project and non-project classes covering the material in these presentations and the results compared with previous general performance for the classes, in only one instance studied was an appreciable shift discovered in the comparison of general performance between non-project and project classes. In this instance the shift was upward for project students. These observations suggest that for activities of the "presentation" type, the size of the group may have little or nothing to do with the amount and rate of learning present. (If anything, the large-class presentation may actually enhance learning for some students.) This very tentative conclusion is consistent, we note, with previous findings of several schools doing work under the auspices of the Illinois Association of Secondary-School Principals.

Those project students who were chronically inattentive and just plain "lost" during large-class sessions consistently exhibited the same behavior during "normal" size classes. Again, the suggestive hint is noted that for a great number of students class size alone for certain activities has little bearing on depth of learning.

During a series of large-class sessions in English, students were asked to write down their perception of the purpose of the activity they were then engaged in or the presentation they were then hearing. These statements were compared with the English teacher's purpose in scheduling the activity or presentation. The range of student perceptions on any single item was staggering. In addition, definite patterns emerged for various students—some consistently perceived very narrowly and their perceptions differed widely from the teacher's purposes; others were consistently accurate in perceiving the exact reason for the activity in question, sometimes even before the activity itself had actually taken

place! These explorations into student perception patterns together with the other observations above suggest very highly that much more work needs to be done in the area of constructing school experiences which will result in the widening of student patterns of perceptions concerning the purpose of various activities and assignments. Many low achievers may actually have mis-perceptions of what is expected of them in school which may account for at least a portion of their poor performance. It is unlikely that fruitful answers to these problems can be found in either the proliferation of only large size classes or in the promulgation of inflexible traditional patterns of school organization.

Other Grouping Changes. During the latter half of the year the mathematics teacher met each day with two groups of roughly eighteen students each. The facilitator met with the remaining nine students. His work with this small group was briefly described earlier. During the last six weeks of the school year, this special group of nine students was further divided into two smaller sub-groups, one of three, and one of six students. This division was based on student progress to date; the faster moving students were grouped together to allow them to progress at a rate they were then capable of attaining.

The composition of the two groups the mathematics teacher met with during the last half of the year were very carefully determined. Students who tended to be "active" learners, who had previously performed best when they were given the responsibility of choosing and solving problems with a minimum amount of teacher direction, and who implied through their behavior an attitude that learning should be initiated and carried out by the learner himself—these students were placed in one group. The other group was composed of students who tended to be "passive" in their approach to learning, who had performed better when given more teacher direction, and who tended to exhibit by their previous behavior the attitude that learning is initiated and controlled by the teacher only. Both groups contained students exhibiting a wide range of achievement in mathematics—from extremely high to very low.

Shifts in Methodology. The mathematics teacher worked in slightly different fashion with the two math groups just described. The former group ("active" learners) were expected to take a greater part in determining the lines of inquiry to be followed. Problems were stated in broader fashion to this group—a greater part of their assignment was the figuring out of what a problem in question actually meant. Their tolerance for pursuing lengthy lines of inquiry without getting answers immediately was higher than the other group's tolerance in this area, and they were, consequently, given "answers" less frequently by the teacher. Lessened teacher *direction* for this group did not mean decreased teacher attention. On the contrary, because of the more dynamic avenues investigated by this class, the teacher had to offer constant and imaginative guidance. The other group ("passive" learners) re-

ceived more teacher direction, more "answers" from the teacher, and dealt with problems stated in narrower dimensions.

Our investigations into perception patterns led to several shifts in methodology in English. In an attempt to "reach" our "mis-perceivers" more successfully, the English teacher constructed presentations and planned activities designed to arouse emotionally and center the attention of even the most unperceptive student. For instance, he began a unit on poetry by playing recordings of current "pop" songs and through this medium introduced such ideas as rhythm, rhyme, repeated refrain, and emotional content. During a unit on the short story, every student was involved in a dramatization of some short story. The idea was to reinforce an inquiry into the elements of short story by having each student "feel" a short story through the emotions of one character in that story.

STUDENT REACTIONS TO CHANGES

Student reactions to frequent re-grouping and changes in scheduling reveal an area where further work seems needed. Some students responded exceptionally well to such changes, a few even relishing the idea of each new combination. The students were by and large among the top achievers in the group and, in addition, were those who appeared to be quite secure in their relationships with their peers.

Other students, however, became extremely upset whenever changes were made. This was especially true when the changes involved complete re-grouping of all students. Once these complete re-groupings had been established and a general weekly schedule worked out for a number of weeks, more minor changes in group composition and scheduling of classes were then resisted only mildly.

Student reactions to changes were most evident from students who, in the estimation of the team, were among those least secure in their relationships with other students. It would appear that the psychic energy these students needed to expend to cope with changing social climates was great. Such a line of reasoning led, in the last five months of the school year, to a reluctance on the part of the team to make widespread changes in sub-group composition. Two intermediate size groups almost identical in composition to the "active learner"—"passive learner" setup in mathematics were established as stable sub-groups with fairly definite weekly schedules. Variations proceeded from this basic schedule.

It may be advisable that, when large organizational units of students are used, each student should be provided with a stable referrant sub-group, a kind of "home base" of other students and a teacher to which he can go each day, a place where he can feel at home within a relatively constant sub-group culture. Together with this there is a need to develop within the total large group itself a stable culture of group values, role expectations, and commonly recognized and valued symbols. Changes in sub-group composition and shifts in the scheduling of classes would then be easier for all students to cope with.

OVER-ALL FACTORS

The Freshman Staff Utilization Project succeeded in demonstrating that a teaching team can provide a program of departmentalized yet flexible instruction along a variety of dimensions determined by the needs of the learning situations. Changes made during the year were made along a great range of dimensions, including:

1. Specific learning objectives deemed desirable by subject experts;
2. Differing types of activities that lead to ultimate learning objectives;
3. The variety of student pre-conceptions about a given subject;
4. Individual students' orientations to independent work;
5. Differing levels of student competency in various skills;
6. Level of achievement in a given subject;
7. Differing meanings (perceptions) students give to specific school activities.

The major operational question constantly facing the team was many faceted, yet integrated: "What size group, of what composition of students, for what length of time, during what time of day, in what room, for which activities, with which teacher(s), leading to which specific teaching-learning objectives?" The dimensions of teaching-learning situations point to several factors important to successful team operation. Intensive team collaboration is dependent on a clear knowledge by the teachers of their objectives and a precise assessment of where in the learning process individual students are at any given moment. For a team to re-group students flexibly, re-schedule classes, and shorten or lengthen class periods, it is necessary that the team know individual students' responses to different demands and expectations. Before a new activity is planned, the team must know the effect of the previous activity. The team must be in a position to predict which students will respond to which kinds of teacher direction. The team must be in a position to plan "what is needed next for which students."

A team of teachers in possession of a great deal of specialized information about students would none the less be hampered in their collaboration unless additional elements were present. Block scheduling appears to be one of the essential ingredients. In a definite sense, a block of initially unplanned time is the "forcing element" in team deliberations. The team *must* plan activities, schedule classes, determine the length of periods, and allocate teacher functions for the otherwise blank space of time. Several times during the year, the Freshman Project team was unable to carry out various plans because of limited time flexibility during certain days of the week. This element missing, collaboration during certain periods of time was abandoned. In the 1959-60 project this limitation will be eliminated as the team will be required to plan for a three-hour block of continuous time each day of the week.

On the basis of this and preceding years' work, we can now predict that teaching teams, all other things being equal, will tend to collaborate

their efforts most in those areas where there is congruency of educational values on the part of team members. The teachers in the Freshman Project found little over-all congruency regarding major educational objectives. However, the facilitator was able to discover congruency on differing levels with each of the four subject area teachers. Thus, within the larger team there actually were four sub-teams, each consisting of the facilitator and one subject teacher. Many of the operations described above were the results of collaboration at the sub-team level only. Since the facilitator was available for collaboration with only one or two other teachers at the most at any given time, the sub-team structure gave rise to conflicting demands for the use of the facilitator. The demand for specialized sub-grouping and facilitator work with small groups exceeded the ability to meet these demands.

The teaching team this year found that the total job was extremely demanding and time consuming. Because there did not exist a built-in over-all congruency of basic educational values, the team was in the position of trying to *evolve* such congruency while at the same time planning the day-to-day operations with students. The 1959-60 Freshman Project will have teachers whose basic educational values are more similar than previously.

The exhaustive time demands made by the requirements of team teaching and planning point to use of team discussion and planning sessions before the start of the school year and the use of clerical and other paraprofessional aid for teaching teams to help alleviate pressing time demands, especially during the first year of operation of new teams.

To date, team projects at the Laboratory School have been primarily concerned with the organizational problems of teaching teams. The 1958-59 Freshman Project and others at the school have demonstrated that teachers can coordinate their efforts to organize the school day flexibly to meet the demands of teaching-learning objectives. The degree and kinds of coordination are related to the areas of congruent educational values held by teachers in a given team, to the amount of flexibility available to the team, to the types of information about students available to the teachers involved, and to the degree of administrative expectation for collaboration present.

This year's project is focusing attention on problems of team composition, and are beginning an evaluation of the effect of one type of team collaboration on depth of student learning.

SUMMARY OF FINDINGS

1. Teaching teams can flexibly organize large portions of the school day along lines dictated by the many dimensions of the teaching-learning process.

2. A continuous flow of precise information about the progress of individual students in the learning process is essential to the flexible



A project newspaper was produced by interested students for distribution to the total project group. The newspaper staff was advised by the facilitator-coordinator as part of his responsibility to aid the project group develop a positive group culture. Weekly newspaper staff meetings were held.—University of Chicago Laboratory School



The use of the facilitator as an additional teacher for working with sub-groups, where a great deal of student planning and student interaction was desirable, was a familiar motif of the project.—University of Chicago Laboratory School

grouping of students, scheduling of classes, and flexible use of team personnel. Information about individual students' perceptions of the purpose of specific activities and assignments is of great importance.

3. The use of widely differing size classes and lengths of class periods, the use of classes of varying student composition, and the flexible use of team personnel, all for specific teaching-learning activities, can be planned more readily within large initially unplanned blocks of time. Such unplanned blocks of time require the teaching team to consider "what is needed next for which students" in their progress towards the educational goals set by the team.

4. Administrative expectation for teacher collaboration will tend to increase the amount of teacher collaboration taking place. This expectation can be expressed through administrative designation of formal teaching teams within the school, and through the spelling out of the responsibilities and prerogatives of these teams.

5. Teaching teams can be expected to coordinate most effort in those areas where there is congruency of educational values on the part of team members.

6. Teaching teams can be expected to avoid collaboration in areas where congruency of educational values does not exist.

7. Teams composed of teachers with widely varying basic educational values can be expected to avoid all but minimum collaboration and/or may expend a great deal of energy in attempting to cope with teacher value differences.

8. A teaching team composed of teachers with widely varying basic educational values can be expected to establish an operational *status quo* similar to that existent before it was designated as a teaching team.

9. The intensive planning and teacher communication necessary for successful team teaching put exhaustive demands on teacher time. Extensive team discussion and planning before school begins and the use of clerical and other paraprofessional help with a teaching team can be expected to alleviate some of the pressing time demands, especially during the first year of a new team's functioning.

10. Activities involving minimum amounts of direct interaction and communication among students and direct two-way communication between students and teacher can be as successfully carried out with large size classes (fifty students) as with classes of twenty to thirty students. There is no evidence to suggest that student learning during these types of activities is any less effective when, all other things being equal, the size of the class is large.

11. The use of large size groups for class periods with "presentation" formats (lectures, demonstrations, films, and the like) can eliminate some unnecessary duplication of presentations and frequently can free material for different use at other times of the day.



Class periods for the total project group were used for other purposes. The showing of movies was particularly suitable for the large class. Not only was teacher time saved in this fashion, but films were thus made more available for use by other groups in the school during those periods when repeated showings would have been necessary under traditional school organization. Whenever possible and advisable, tests were given to all project students during the same class periods.—University of Chicago Laboratory School

12. Activities in which there occurs a great amount of direct interaction and communication among students, and between students and teacher, can be expected to be the least successful activities for use with large groups. Groups greatly reduced in number, fifteen to five or even less, depending on what activities and which students, seem best suited to these types of activities.

13. Student reactions to frequent alteration of the composition of sub-groups within the large class, and to changes in their daily schedules point to the need for:

- a. the inclusion of each student in a sub-group whose composition does not change, a kind of "home base" of other students and a teacher that can provide each student with a relatively constant sub-group culture.
- b. the need for developing within the total large group itself a stable culture of group values, role expectations, and commonly recognized and valued symbols.

Five Projects Designed To Increase Students' Independence in Learning, University of Illinois High School

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ALTHOUGH each of the five projects discussed in this report was conducted separately, they have one important element in common. All seek to improve instruction by increasing students' responsibility for their own learning, as discussed in the previous report in the January 1959 issue of this BULLETIN.

The principal investigator for the French Project is Miss Pauline Changnon. The Biology Project Report was prepared by Roger K. Brown, principal investigator. Paul Westmeyer directs both the Chemistry Project and the work with Advanced Problems in Science, and he prepared the reports of these studies. W. L. Shoemaker, Director of Guidance, and D. M. Jackson, Principal, are directing the study of school and college articulation discussed subsequently.

FRENCH PROJECT

The study in French was directed by Professor Pauline E. Changnon who has taught French in University High School for 29 years. The project was directed basically to this problem: Can students in fourth-year French learn as much from two classes per week with the teacher plus three class hours of independent study as they would in the conventional five classes per week with the teacher each day? The fourth-year group included seven students from University High School and eight students from Urbana High School. Classes were held on Tuesdays and Fridays with the students working with a tape recorder and pre-recorded tapes on Mondays, Wednesdays, and Thursdays.

The subject matter of the twenty tapes included dramatic material, short stories, articles, poetry, criticism, descriptions of life in France, and historical and political material. The 30 voices were those of both men and women of varying ages representing all major regions of France.

David M. Jackson is Principal and the others are teachers in the University of Illinois High School, Urbana, Illinois.

Miss Changnon's Comments on What Was Accomplished

We helped students to learn to study on their own and to achieve without constant supervision and help. They had to learn to achieve; also to work and cooperate with the others in the group and to be responsible for the materials, the machine, and the room. At first, I found some unrest and unhappiness. To make sure I wasn't imagining this, I gave a questionnaire which revealed that the majority missed the usual class setup. One student came twice to see me and to try to convince me I should come back and to express his uneasiness. He finally worked to the best of his ability. I was also fortunate enough to allay the other students' misgivings.

Several others came and tried to convince me that they were not mature enough to settle down alone in a room and work. I explained to some length that I thought they could do this, but it would take some will power and real "growing-up" on their part. I also told them that I felt they could do this or I wouldn't have tried the experiment. Occasionally I had to discipline some for loitering between classes and then bothering the group by wanting to start the tape over again so they could understand what was happening. Some insisted on chattering and one boy in the group didn't appreciate their small talk. I suggested that he put on the ear phones. However, when I saw some persisted, I had a conference with them.

I feel that the groups made normal progress in the comprehension of the aural aspects of the course. I do not feel that the students made as much progress in mastering grammar or in being able to express themselves in French as they do with a teacher who gives them an opportunity to grow in this daily. In two hours of recitation per week, it is very difficult to test to see what progress they are making, and to see if they satisfy their natural desire to speak and sing in the language and to explain the grammar.

Special Problems Involved in the Two Schools Working Together

Since the two high schools were not part of a single school system, their calendars were not identical since several one-day vacation and semester examinations fell on different days. The inevitable interruption of the daily schedule in two schools rather than one had the effect of doubling such interruptions of the French class. Numerous accommodations had to be made by the teacher and students especially since the work of a whole week was disturbed by one group or the other's missing one of the two weekly classes.

A more serious problem lay in the difference in the background of the two groups in the class. One group had had extended training and experience in listening to tapes and records, and the other group had had comparatively little. The teacher had to be extremely ingenious in devising means of keeping the first group challenged while offering training in listening to the other group.

The major objective of the interschool cooperation, that of sharing teachers and instructional facilities, was accomplished and all but one of the students made good progress. As a result of this experience, we have a more realistic notion of the problems involved in such cooperative arrangements, especially when the two schools are so diverse in character and function.

The Costs of the Experimental French IV Program

The cost of this program beyond the cost of the regular French IV course as conducted in previous years amounted to one month's summer salary for the teacher and about \$400 for the production of tapes and other learning materials. We expect that this cost will be much less in succeeding years—closely approaching the cost of a regular course in which a variety of books, records, tapes, and other learning materials are used.

Next Steps

In the second year of the project several changes are being made—(1) the syllabus for the courses are being expanded to include more instruction and practice in grammar, and (2) more tapes are being prepared, several new voices are being used, and some changes in subject matter are being made to meet the interests expressed by the previous class.

At the close of the second year of experimentation, Miss Changnon will prepare a monograph based upon the results of the experimentation. This will be designed to provide suggestions for teachers who are interested in inaugurating such a program at the more elementary levels as well as for advanced students in high-school French.

The program is being supported during 1959-60 by the Research Department of the office of the Superintendent of Public Instruction, state of Illinois.

BIOLOGY PROJECT

Introduction

The teaching of scientific attitudes and the methods of science have long been acknowledged as basic goals of secondary-school science. Further, the maxim, "The ways of a scientist are not taught, but caught," suggests that these attitudes and methods can be apprehended most effectively in the science laboratory in which scientific experimentation is practiced.

Unfortunately, even able science teachers, confronted by growing enrollments, are hard pressed to maintain laboratory programs which encourage students to experience the psychological rewards of discovery through genuine scientific experimentation. As a result, most secondary-school biology laboratories are used only for the presentation of visual aids intended to substantiate ideas presented by text and teacher.

Purpose of the Study

It was the intent of the investigator to discover, if possible, promising techniques or devices which would enable students to design and conduct appropriate scientific experiments in the biology laboratory with an increased degree of self-direction. The teacher would thus be freed to devote time to the more difficult problems encountered by the students rather than to dissipate his time and energies on routine problems which can be readily solved by the student if he is encouraged to seek the solution by himself.

Instruments and Procedures

The biology class of 22 students ranged in age at time of enrollment from 13 years, 6 months to 16 years, 10 months. Mental abilities averaged above the normal although several students had average or less than average I.Q. scores. The class met for five 56-minute periods each week plus two all-day field trips.

Form Am of the *Nelson Biology Test* was administered on the second day of class and Form Bm of the same test during final examination week. Scores are presented below.

Teacher- and student-constructed tests were used and the design and quality of experiments were carefully evaluated. An attempt was made to measure knowledge and understanding of principles and concepts, ability to recognize relationship of cause and effect, and ability to interpret data accurately.

Outline of the Course

Topics	Notes
<i>Phase A</i>	
1. Orientation and Pretest	
2. Ecology. Interrelations of organisms and physical environment	This and the topics to follow were to prepare for field trip. Field equipment was assembled and studied
3. Techniques of field study observation and recording equipment and its use in collecting specimens; preservation and care of living forms Identification Preparation for field trip	"Field Library" and maps assembled and studied. Use of taxonomic keys studied. Class divided into 4 groups, each with leader and recorder
4. Field trip to conservation area	Assignment: observe, record, study and collect in two of the four habitats described. Try to explain the association of various forms observed. Record any unanswered questions. Instructor divided time between each of four groups

- | | |
|--|---|
| 5. Study of collected material
Preserve or culture
Use of laboratory equipment discussed | Students worked in their field teams. Each team prepared a report of observations and study to be read and evaluated by other teams and instructor |
| 6. Group test on principles of ecology | This test was written cooperatively by members of team. Evaluated by instructor. Team members assessed contributions to the study and test of each team member using criteria and form developed by teacher |

Phase B

- | | |
|---|--|
| 7. Unanswered questions raised on trip discussed and several researchable problems identified | Extraction of problem from matrix, and statement of hypothesis practiced |
| 8. Research designs proposed and analyzed. Compared with "classical" studies in biology | Role of controls, testing of single variables, <i>etc.</i> , discussed |
| 9. Four investigations of approximately two-weeks' duration conducted | Students divide into teams on basis of interest in problem. While experiments are underway, class began study of animal kingdom |
| 10. Report of investigations received and discussed
This process is repeated for practice. Teams reorganized | Considered limitations of data and appropriations of conclusions. Difficulties not anticipated in original design discussed and solutions proposed |

Phase C

- | | |
|--|---|
| 11. Problems of interest to individuals or small groups proposed for study. Experiments designed and conducted | Students had by this time developed greater competence and were capable of working with only minor supervision |
| 12. Concurrent study of animal kingdom, plant kingdom, and biological concepts and principles | Laboratory periods were scheduled as needed. Lab was open during free periods and after school. Many experiments were conducted at home |

It is hoped that the outline indicates that gradual "emancipation" of the teacher from routine teaching to a role of supervision of experimentation. During *Phase A*, the teacher took the initiative in setting goals and assigning tasks. The field trip was a test of the students' ability to work independently and to become acquainted with the abundance of unsolved problems in biology. The division of students into groups permitted the instructor to work with four groups rather than 22 individual students and at the same time pooled the knowledge and ability of teams of students. Many routine questions posed by one team member could

be answered by another member of the team or through reference to a printed source without reference to the instructor.

The group test was another experiment in more effective use of teacher time. In addition to reducing the number of examinations to be graded, a considerable amount of learning took place both during the writing of the test and during the evaluation by other groups. A worth-while concomitant learning appeared to be the increased appreciation of the contributions of other team members and the necessity for cooperation and sharing of knowledge rather than competition for a grade. Students responded positively to this approach and were enthusiastic about repeating this type of examination although they felt it was more difficult.

Phase B finds the teacher at first teaching about research techniques and methods but later serving as a consultant on individual or group studies. Much teacher time was consumed in finding sources of information on rather specific techniques. An assistant was employed to search literature for elegant and simple techniques which could be adapted in high-school laboratories. A bibliography is being developed as a possible solution to this problem. During *Phase B* somewhat more conventional material and methods were used concurrently with the student experimentation.

Phase C found the teacher largely employed in somewhat conventional teaching during discussion periods while students used laboratory periods and free time to continue experimentation. During this period, the teacher was often consulted on specific and difficult points related to a particular study but did not feel that a greater demand was made on his time than while conducting a conventional course.

Concomitant Learnings

It was encouraging to find that the techniques and methods, summarized in this preliminary report resulted in heightened student interest, in reduced problems of discipline and in greater persistence on the part of students who pursued problems of interest to them to a greater extent than previously. All of these outcomes might have been predicted since the students were engaged most of the time in studying problems of their own choosing and in seeking to reach self-imposed goals. They were enjoying the psychological rewards of active, self-directed learning.

Difficulties Encountered

A listing of the problems that arose through use of these techniques centered around three points. (a) There was a lack of good text materials for teaching the methods of science and elements of statistical inference. Materials on these topics have been developed and they are being evaluated and revised in the light of their use this year.

(b) A source book for use of biologists is badly needed. A bibliography of extant sources of information on rearing, breeding, and experimenting with living organisms was developed during the past summer and is now

being expanded. Some fugitive materials of wide application are duplicated for student use. The American Institute of the Biological Sciences has announced plans for early publication of a comprehensive source book which should be of great aid.

(c) The third source of difficulty centers about physical facilities. Dispersion of animals and experiments requiring much space to homes was necessary. Some delays were encountered when needed equipment was not immediately available.

CHEMISTRY PROJECT

The Problem

In the early days of chemistry teaching in secondary schools, the course consisted entirely of lecture and discussion. Then there developed a rapid move toward construction of laboratories and the chemistry courses became almost entirely laboratory courses. A reaction set in and the controversy raged for many years as to whether individual laboratory experiences or demonstrations by the teacher were the most effective method of teaching chemistry.

While this controversy is still active today among some uninformed teachers, it has been shown to be pointless. Modern beliefs based on recent discoveries in the area of learning psychology hold that factual learning, no matter how it is accomplished—by demonstration, individual laboratory exercises, or textbook reading—as long as it is not seen by the student as a part of the whole picture of the science in which he is studying, is very rapidly forgotten. The student who ranks at, say, the 80th percentile on a standardized examination at the end of his year in chemis-

<i>%ile Score Interval</i>	<i>Pre-Test No. of Cases</i>	<i>Post-Test No. of Cases</i>
99—	1	7
95-99	5	9
90-84	4	2
85-89	3	0
80-84	2	2
75-79	1	0
70-74	0	1
65-69	0	0
60-64	3	0
55-59	0	0
50-54	0	0
45-49	0	0
40-44	0	0
35-39	1	1
30-34	1	0
25-29	0	0
20-24	0	0
15-19	0	0
10-14	1	0
	22	22

The Biology Project is being supported during 1959-60 by the Research Department of the office of the Superintendent of Public Instruction, State of Illinois.

try may well have dropped to the 50th percentile on the same test by the time he is ready to enter college in the fall.

The key to more permanent learning is relatedness. All material learned must be learned with a definite purpose, in the eyes of the student, and must be related to the whole picture of the course. Thus, in the chemistry class acids are not studied by reading a chapter in a textbook one day, discussing it the next day, and performing a laboratory "experiment" on the third day if that day happens to be one of the scheduled laboratory sessions. Rather, the topic of acids must begin with a problem which has meaning to the students. The textbook and reference materials will be read as there is need of them. And the laboratory will be used when it is appropriate to do so in helping to solve the problems that have arisen, not when it has been scheduled prior to beginning of the course.

The problem that arises, even if a teacher is committed to the beliefs expressed here, is that, as a class becomes large, the use of the laboratory on a more or less informal basis becomes progressively more difficult. If a class of 20 students fills the laboratory, as it usually does, the temptation is great when the class reaches 30 students to refrain from much use of the laboratory. The teacher simply cannot oversee the work of fifty per cent too many students under the crowded conditions. This is the problem being investigated in the present study. It has two parts: (1) Can a large class in chemistry be given effective instruction in the laboratory by a single trained teacher with the help of a para-professional assistant? (2) If the chemistry course is taught in accordance with the beliefs outlined above, will the self-dependence of students, as far as working in the laboratory, be increased with a concurrent decline in the necessity of close supervision?

Experimental Procedures

During the first year of the study, materials were to be developed which would aid in teaching a course in accordance with the beliefs outlined earlier. Since it was expected that the teacher in charge of the course would spend much of his time developing these materials, the assistant employed for the first year was a teacher trained in chemistry.

The first year was also intended as a preliminary study to develop hypotheses which can be tested during the second year of the study. For this purpose, certain pre- and post-tests were used which will be described in the next section of this report. But the major part of the study consisted of a sort of case-study technique in which the instructor and assistant rated the students on effectiveness in using the laboratory and made more or less subjective judgments on how much supervision was required by a given student.

In the projected two-year study, no control group has been considered. However, if the results of the second year of study seem to indicate, a third year might be used to operate a control for comparison purposes.

Techniques of Measurement

Since one of the hypotheses being considered was that students taught in the manner described would increase in self-directive abilities, an attempt was made to evaluate this by using the *Max Test* on Interpretation of Data in Chemistry; one of the self-directive abilities is interpretation of data. No other tests are available which measure this sort of ability very well, so for the most part the case-studies must cover this aspect of evaluation.

It is important, chiefly for the benefit of those who believe that factual learning is important, but also because there is associated with the real learnings discussed in the course outline a large measure of factual awareness at the end of the course, that some accurate determination of the factual learning of students in this course be made. For this purpose two tests have been used. One was used as pre- and post-measure—the *Whole-Truth-and-Nothing-but-the-Truth Test* (WTANBTT) prepared by William Lucow of Manitoba, Canada. This test is unique in the way in which answers are scored. In a multiple choice item there may be one, two, three, or more correct choices and the answer is not counted as correct unless all possible items are marked. The second factual test used was the newly developed American Chemical Society's *National Science Teachers Association Chemistry Examination*. This test was administered only as a post-measure since there are norms with which the students can be compared.

A running account of the course from beginning to end has been kept. This includes many references to individual students. However, no individual case studies will be reported this year since, as stated earlier, the main purpose (besides developing the course materials) has been to develop hypotheses to be tested during the second year. Instead of the individual case studies, the instructor and assistant have made various ratings which have been treated statistically and will be reported in the next section of this report.

Analysis of Data

1. *Max Test*. This test consists of two parts which were administered on separate days in October 1958, and again in May 1959. The scores on each test were determined and these were then added to give a total score for this test. Testing the null hypothesis that this sort of ability, interpretation of data, is unaffected by course learnings, one would assume that all students should achieve the same scores before and after taking the course. The effect of memory of test items is negligible for two reasons: (1) the great time lapse between taking the pre- and post-tests, and (2) the fact that correct answers were never given to students on the pre-test. Only scores were reported to them.

Since it is unrealistic to assume that students will make identical scores twice on a test, one tests the hypothesis that half of the students will achieve higher scores on the post-test and half will achieve lower scores.

Using the Sign Test to determine the significance of 11 decreases and 18 increases in *Max Test* scores, it is found (with extrapolation) that this is significant at the .30 level. Since it was previously decided that the .05 level would be accepted as significant, the null hypothesis cannot be rejected in this case.

2. *WTANBTT Test*. This test also consists of two parts which were administered on two separate days in September 1958, and again in May 1959. The tests are long and some students were unable to complete them in the time allotted (the tests are not timed). Hence raw scores were given in the form of ratios; for example, a student who correctly answered 43 items on the 108-item test but had time to try only 97 items was given a score of 43/97. Raw scores on the two parts of the test were added to give a total score; for example, the 43/97 on Test I was added to the same student's 34/98 on Test II to give him a score of 77/195. These ratios were then converted to per cents for convenience in handling.

The average score on the pre-test was 17.02, and on the post-test it was 45.54, an increase of 28.52 percentage points. A t-test of the significance of this difference indicated that the difference is statistically significant at the one per cent level. Thus we can state that this course has resulted in a significant amount of factual knowledge increase.

3. *ACS-NSTA Test*. As stated in the previous section this test has norms with which we can compare our students. In this class of 30 students 21 ranked above the 50th percentile.

4. *Instructor Rankings*. Each of the instructors of the course (the regular instructor and the assistant, who taught much of the time) ranked the students as to achievement in the whole course and the two instructors consulted together two times in the course to rank all students on problem-solving ability and approach to problem solving. The ranks on problem-solving about the middle of the course were compared with the ranks at the close of the course (the final rankings were made without previous reference to the initial ranks to preclude any bias). Testing the hypothesis (null) that there should be no difference in these ranks, or that half of them should increase while half should decrease, the sign test shows the results to be significant at the .032 level. Since the .05 level was stated as the acceptance level we reject the null hypothesis in this case and state that there was a significant increase in the ability of students to solve problems and in their approach to such problems.

Finally, the rankings by both instructors of students on total achievement were correlated with the actual ranks achieved by students on the *WTANBTT Test*. In both cases these correlation coefficients (rank correlation) were significant at the .01 level. Thus we conclude that the factual achievement is closely related to the achievement on problem-solving and other factors considered in the over-all objectives of the course.

Hypotheses

Preliminary testing of the course seems to indicate that there is a trend toward greater ability to interpret data, although the results of a test in

this area were not significant this year. Thus an hypothesis to be further tested is that a course taught in this fashion will increase the ability of students to interpret data.

The hypothesis that such a course results in a significant amount of factual learning will be further tested. Attempt will be made, by case-study techniques, to test the hypothesis that achievement in problem-solving is related to achievement in factual learning.

The increase in ranks on problem-solving, which included some judgment regarding the ability of a student to guide his own efforts in the laboratory, seems to indicate that one of the original hypotheses may be true—that a course taught in this manner decreases the amount of direct supervision necessary. This will be further tested, and more realistically, when the assistant is a para-professional rather than a trained chemist.

Conclusions for the First Year

It may be concluded, tentatively, as a result of the first-year's study, that a large class can be given extensive laboratory experiences in chemistry by a trained teacher with the help of an assistant and that such extensive laboratory experiences will not only not hinder the development of factual learnings but will also result in an increase in problem-solving ability as well as a significant amount of factual learning.

ADVANCED PROBLEMS IN SCIENCE

The Problem

The charge has been made repeatedly that the secondary schools of today do not provide enough challenging courses for the best students. Those who want to educate an intellectual elite argue that all courses should be made more rigorous and that those students who cannot do the work should be dropped out of the schools without graduating, or else should be provided with an entirely different track of education. Educators who have tried to meet the problem insist that the real gifted students are in very small minority and making all courses more rigorous would eliminate the large majority of students from these courses.

Admitting that there should be challenging work at the level of every student in the school, especially for the purposes of this study in the sciences, it is still easy to understand the plight of the principal who has too little money and too many students and who is badgered to do something special for his three or four really gifted students. He cannot set up special courses for them; he simply cannot afford it. It is too much to expect that each teacher within his regular classes can and will provide special experiences for these gifted students.

The only real solution left is that these students must be placed in charge of their own education to some extent if they are to have special experiences in the high school. The problem being investigated in this study is that of organizing and operating an independent study course for gifted students in science and of making some judgments concerning its value and desirability.

Experimental Procedures

The procedure is simply to design and try a course such as described. The course in this school is called Advanced Problems in Science. Students enroll in it in the spring by making application for admission. At this time they present tentative plans for the study they want to carry out and they also present evidence from their past school record that they are capable of working with a minimum of supervision. The supervisor of the course then consults the school records for an estimate of the mental ability of each applicant and he also consults with other members of the science department concerning their knowledge of the student's ability to direct his own efforts. Students who are likely to be rejected are discouraged from applying by setting limits on the grade average which must have been maintained in previous school records.

The result of all this is that the group which is selected for admission to this course is truly a gifted one in one sense or another—the students may be exceptionally bright, extremely interested in science, or mature enough to have selected a field of specialization early.

After a class has been selected, arrangements are made for each student to have an individual work space in a room set aside for this purpose. Each student has a key to this room and other students are not admitted. (At the present these facilities leave much to be desired, but they do provide a place that each student can call his own.) The work in the course is entirely individual. There is no group instruction and no real individual instruction. When a student has a problem, he consults with the supervisor of the course who either helps him or arranges for someone else to provide the help that is needed. All the members of the science department cooperate in providing help to the students in this course, although one teacher is responsible for its operation.

Each student makes a daily report of his work by filling out a brief form stating where he worked and what he did. He also keeps a running record of his efforts. This record is collected periodically for checking by the supervisor. In addition to these two records, the supervisor checks on individual students occasionally, according to no special pattern, by dropping in on them as they work and chatting about their efforts and accomplishments. Perhaps three times a year, all students are called into the office for individual conferences.

Seminars are held on alternate weeks at which the students take turns passing on to the rest of the class their efforts and accomplishments. The class does not meet as a group at any time other than these seminars. Students are enrolled at whatever hour of the day is convenient for them when they make their programs. This results in no more than two or three students being in the room at any one time, a factor which probably contributes to the success of the course.

Evaluation for grades is also an individual matter. Each student must decide upon what he wishes to be graded. He may elect to take tests, to

write papers, to turn in reading reports, to have an individual conference (a sort of oral test) or whatever else seems appropriate. Each student is also asked to evaluate his own efforts.

Evaluation

The real part of this course tested during 1958-59 was the operation at all hours of the day with very little supervision. In previous years, this course had been run much the same as it was this year, but at only one specific hour of the day during which the teacher was available regularly. There is no very good way to test the value of this operation except by subjective judgments by the supervisor of the course and by the students who were involved in it. For this reason one year of operation was not considered enough for a real test and a two-year study was projected. The question then is "Does the course work?" The answer may be found in descriptions of some of the individual efforts and results.

During the first semester three students enrolled in the course for the purpose of studying advanced physics since there was approximately a semester's worth of material in the outline which had not been covered in the regular course. These three students worked rather effectively at this material following the outline which was given them and achieved grades of A at the conclusion of the work.

In addition to these three special students, there were six students who were admitted for a variety of studies. One boy spent a semester investigating the sweat reflex in humans and preparing a written report on this topic—a very lengthy tome. He spent the second semester developing techniques in studying the embryology of chickens in order to be able to make a detailed study the following year of the development of the nervous system in the chicken.

Another boy became interested in the growth of molds and made many detailed studies of them, including experimental determinations of the conditions under which certain molds grow best. In addition to these studies, he worked through the syllabus provided for students who are interested in advanced placement in college biology.

A third boy made a detailed study of metallurgy including experimental work on the effects of current on thermocouples—thermoelectricity. This student prepared a report which merited an award in the Illinois State Talent Search and honorable mention in the National Talent Search.

One of the girls also worked through the advanced placement syllabus and achieved a near-perfect score on the College Board Examination in biology. On the side, she grew insectivorous plants and did many experiments with them—determining how long the closing takes, the kinds of stimuli which affect the closing of Sundews, etc.

A second girl worked with plants in a study of the effects of irradiation on their growth. She arranged to have plants and seeds irradiated at a local hospital and then planted the seeds and observed their growth.

Controls were also kept for comparison purposes. She also did many other experiments with plants and much reading on general botany.

The other girl in the class started with the arrangement of a plant collection and went from this to studies of the effects of growth hormones and gibberellins on plants. She also did many side experiments on germination in addition to much reading in the general area of botany.

Student Evaluation

At the end of the course, each student was asked to evaluate the course on several points—the facilities, the supervision, the requirements, the time allotted, and the methods of grading. Their comments were unanimous in the belief that a course such as this works best without supervision. One boy commented that if the student wanted anything he knew where to find someone to ask. One of the girls did comment, however, that better arrangements should be made to isolate students, or at least to allow them to work in private if they so desired.

There was general agreement that requirements should be kept to a minimum since each student's project may be entirely unrelated to others and there is hardly any basic set of readings or other work which would be appropriate for all. The students were unanimously in favor of strict requirements for individuals; however, they expressed the belief that weekly conferences should be held, due dates set, and penalties attached for lateness with results.

The suggestion was made, but was not unanimously accepted, that there should be no grades except pass or fail in this course. Many of the students also gave specific suggestions on minor points which might be altered next year and on questions which should be asked of students applying for admission to the course.

Conclusions

This course has been in operation for four years. We were convinced of its value when it operated on a one-hour period plan with a teacher available if not in direct attendance. In 1958-59, for the first time, registration was open for any hour of the school day and the course was operated without a teacher in attendance. There was a supervisor in charge, and the students knew his office hours and where to reach other help if they needed it, but there was no direct supervision. In other words, no teacher time need be required for this course under the present arrangement.

A course like this could be operated in a school where the science teacher has a full load of classes if the administration could free him from just one class to attend to the seminars and record keeping. During the other hours, students would have to be provided with a place in which five high school depends upon careful selection of the students.

INCREASED RESPONSIBILITY FOR SENIORS

In the spring of 1958, members of the class of 1959 expressed some interest in a study in which they would manage their own time outside of classes during the school day without study halls or close teacher supervision. The major purpose of this study is to try to find practical means of easing the transition from high school to college. The study involves some administrative reorganization in that the seniors were not assigned to study halls nor required to be present when they did not have classes or other specific responsibilities.

There was a series of counseling contacts with the seniors during the year which included in each case two or more interviews and a questionnaire near the beginning of the school year and another at the end of the school year. There were two purposes for the counseling contacts—helping seniors to make wise decisions about the use of their time and gathering data for the study. An important part of the data gathering will come at the end of the students' college freshman year when they have agreed to assess the effects of the freedom of their last year of high school upon their work in their freshman year in college. A full report of this study will not be made until the results of the follow-up phase have been analyzed.

Following one-year's experience with this program in the high school, we can report certain results:

1. The seniors were asked to propose a set of rules to be observed by them in exercising the privilege of managing their own free time during school hours. These are the rules they proposed: "This privilege will automatically be withdrawn, in individual cases, for the following reasons: (a) excessive tardiness to classes; (b) failing or near failing work; (c) behavior outside of school, during school hours, that is damaging to the reputation of the school; (d) creating problems within the high school. This privilege *may* be withdrawn for the following reasons: (a) recommendation of a teacher to the counselor; (b) academic achievement below potential." The rules were accepted by the faculty exactly as proposed.

2. With one possible exception noted in point 4 below, the incidence of such problems as excessive noise in the halls and tardiness or misbehavior outside the school was very slight and these problems did not seem to be related to the seniors' privileges.

3. Of the 41 seniors, seven had the privilege of free use of time revoked for periods ranging from one to nine weeks. In all cases the revocation was related to deficiencies in academic work.

4. Many seniors chose to study in the library during their free time. A few seniors displayed a persistent tendency to use the library as a center for social visiting. We are not sure whether this tendency was related to the free time or whether the problem would have existed in the same proportion if the seniors had signed out of study halls to the library as in the past.

5. A significant reduction was made in the amount of teacher time devoted to study hall supervision.

Grouping, Acceleration, and Teacher Aides Experiments in Urbana Secondary Schools

R. H. BRAUN
JAMES STEFFENSEN

THE Urbana High School in September 1958 initiated three studies to test procedures designed to increase student learning and to improve the utilization of staff. One of the three experiments was conducted largely in the Urbana Junior High School under the supervision of the principal and with the cooperation of the faculty. In reality this was a large segment of a more comprehensive study of homogeneous grouping and acceleration. An important and rather novel element in this project was the decision of the University of Illinois in August 1959 to permit selected, talented secondary-school seniors to enroll in one university class each semester while technically high-school students.

The second project was an experiment using teachers and teacher aides in large classes of typing, shorthand, general business, and bookkeeping.

The third project was conducted in cooperation with the University High School in Urbana, Illinois. The report of this study is included in the article by Dr. David Jackson, Principal, University High School.

In September of 1959 these studies have been in progress for a year, and we feel that we have only begun to explore the possibilities. As we progress further, we continually find new and exciting variations for study.

HOMOGENEOUS GROUPING AND ACCELERATION

For some years the Urbana High-School faculty has attempted to provide partially for a diverse population by homogeneous grouping by single subjects. Remedial classes were set up for the very poor students and special classes in English, mathematics, and science were arranged for superior students. In general the faculty was pleased with the results; objective test results were encouraging, and the students accepted our grouping procedures somewhat as a matter of course.

Many of the faculty members felt that homogeneous grouping was the most far-reaching step we had taken, but they also were convinced that some of the superior classes were quite capable of going far beyond what

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we had planned for them. If the average ninth-grade student can take algebra without too much difficulty, what is our excuse for holding the very bright students in the same lock-step of algebra in the ninth grade and biology in the tenth? Quite obviously the superior students were capable of accomplishing much more and were being held back by a traditional, unimaginative school program.

One of our boldest steps in breaking the curriculum lock-step was taken four years ago when we strongly urged superior ninth-grade students to take biology instead of general science. The only requirement was a B grade in eighth-grade general science. At the end of the year, scores on the *Cooperative Biology Test* showed that the superior freshmen had a median score far higher than the median score of the sophomores, juniors, and seniors taking biology. Clearly the results indicated that the brighter freshmen were capable of doing excellent work in biology. During the following three years, our conclusion was verified. As sophomores these students were permitted to take physics and as juniors to take chemistry.

The success of the bright freshmen in biology encouraged us to take the next logical step. Surely there are other subjects which can be taken earlier by superior students. Why not expand our acceleration project down into the eighth grade? Why not extend it beyond the usual high-school subjects by means of the advanced placement program, or by permitting high-school students to take college courses on a college campus? Our major project of this year in this area, however, was conducted in the Urbana Junior High School.

The Urbana Junior High School under the guidance of the principal, Wendell Anderson, initiated a project of acceleration or changed placement. Valuable assistance was given by Gary Blade, Urbana School Psychologist, and Ralph Harris, Acting Principal. This project in better staff utilization was also a project in better utilization of pupil time. Eighty superior eighth-grade pupils were permitted to take one, two, or three ninth-grade courses. The courses offered to them were algebra, ninth-grade English, and ninth-grade general science. Upon completion of the courses, the pupils received high-school credit in the subjects taken, thus entering high school with from one to three units of work. Pupils who participated in the program had three possibilities open to them:

1. They could take five years of work in one to three subject matter areas.
2. They could study in areas which they would ordinarily have omitted due to lack of time.
3. They could be graduated from high school one year ahead. In general early graduation from high school was minimized. The primary purpose of the program was to provide depth and breadth in the high-school program.

Evaluation of the Eighth-Grade Program

The success of the program of acceleration was to be determined by the achievement of the students in the classes and by ascertaining the attitudes

and opinions of the students and their parents toward the study by means of questionnaires.

Student Responses to Questionnaire. A total of 79 usable responses was obtained from the 80 students in the six classes.

1. *Distribution of students in the accelerated classes.*

	Boys	Girls	Total
Algebra only	5	3	8
English only	1	7	8
General science only	1	1	2
Algebra and English	2	3	5
Algebra and science	5	5	10
English and science	7	3	10
English, science, and algebra	6	30	36
Total	27	52	79

2. *Do you plan to go to college?*

Boys—"Yes"—27 out of 27—100%

Girls—"Yes"—47 out of 52— 90%

3. *If you had the choice again, would you take the accelerated program?*

Five unqualified "No's"

Two "No's" for part of the program

72 of 79, or 91%, approved of the program

4. *Seventy-three students indicated they would take four additional years of work in the following subjects:*

Mathematics 24 students out of 59 in the accelerated mathematics class

English 35 students out of 59 in the accelerated English class

Science 14 students out of 58 in the accelerated science class

These 73 responses actually involve 56 different students. The 36 students who were enrolled in all three accelerated courses planned to take the following subjects in high school:

4 years of English 22 students

4 years of mathematics 10 students

4 years of science 9 students

3 years of English 12 students

3 years of mathematics 17 students

3 years of science 14 students

(3 students indicated 4 additional years of each)

5. *How much homework do you have?*

	Boys	Girls	Students in 3 accelerated classes	
			Boys	Girls
Much more	17	25	4	17
More	9	26	1	12
Same amount	1	—	1	—
Less	—	1	—	1
Total	27	52	6	30

6. *Why do you think you were chosen for this class?*

In general, the students felt that they were chosen on the basis of the standard test scores, previous grades, and teachers' judgment. The majority of the responses indicated that the students were quite aware of the importance of the standard testing program administered in the seventh grade. Approximately 12 of the 79 indicated they did not know why they were chosen.

7. *Do you plan to be graduated early from high school?*

There were 73 "No's," thus indicating that 92% would plan on four years of high school.

Parental Responses. Each of the 79 students in the accelerated classes addressed an envelope to his parents. This envelope was then used to mail a questionnaire plus a stamped envelope for return of the questionnaire. There were 59 questionnaires, or 75%, returned. No provision was made for a signature. Free responses were solicited and ample space was provided. Numerous free comments were received.

1. *Which would best describe your general attitude as parents toward the accelerated eighth-grade program?* (The parents were asked to check: Very favorable, VF; Favorable, F; Indifferent, I; Unfavorable, U.) With one exception, the only items checked were VF or F. Therefore, it was assumed that (a) the parents generally approved of the program, and (b) differences in attitude toward the program varied from very favorable to favorable. On the basis of the number of accelerated classes in which the pupil was enrolled, the parents' responses of very favorable were:

One class only	5 of 11, or 45%
Two classes	10 of 15, or 67%
Three classes	18 of 30, or 60%

On the basis of the sex of the pupil, the parents' responses of very favorable were: boys—15 of 19, or 79%; and girls—18 of 37, or 49%.

2. The free responses were defined as critical if they offered criticism of any part of the program, whether the element being criticized was actually unique to the accelerated classes or not. Of parents with children in all three classes, there was a total of 6 of 30, or 20%, critical responses. Of parents with children in fewer than three classes, there was a total of 6 of 26, or 23%, critical responses. Five of these 6 were parents of the 11 children in just one class. On the basis of sex, 2 of the 12 critical comments were from parents of the 19 boys, or 11%. The parents of the 37 girls accounted for 10 of the 12 critical responses, or 27% of the girls' parents offered critical comments.
3. With one exception, all parents indicated an affirmative response to college attendance for their children.
4. All parents indicated an affirmative response to the question "Do you feel that you have an adequate understanding of the reasons for which this program was established?"
5. There were 5 affirmative responses of the 59 returned that indicated an interest in early graduation from high school.

6. The distribution of responses to the following question: "Of the following, check any or all of those which you feel apply to your son or daughter as a direct result of the accelerated classes."

	Total
a. Too much academic emphasis	4
b. More appropriate academic emphasis	39
c. Appropriate amount of homework	26
d. Excessive homework	17
e. Improved school work habits	19
f. Greater participation in school activities	5
g. Less participation in school activities	4

Evaluation on Achievement

The general procedure was to use the eighth-grade accelerated classes as the experimental group and then match, or pair, with a control group of ninth-grade students. The matching was done on the basis of the total score obtained on the *California Achievement Test* which is annually administered in the fall of the seventh grade. In each instance the N of the total groups was reduced by random sampling. The statistic used was the Sign Test, a nonparametric test which tends to use each subject as his own control. The level of significance for rejection of the hypothesis is .05.

Algebra Evaluation. Students in the accelerated eighth-grade classes and all of the ninth-grade algebra classes were administered the *Cooperative Elementary Algebra Test* at the completion of the course. A sample of 33 matched pairs was drawn. The eighth-grade sample had a mean of 69.55 and a standard deviation of 6.02; the ninth grade had a mean of 67.82 and a standard deviation of 8.43. Thus, the eighth-grade group actually had a higher mean score on the test than the ninth grade. On the basis of the *Cooperative Elementary Algebra Test* the eighth-grade students achieved as well as the ninth-grade students.

English Evaluation. The pupils in the eighth-grade accelerated classes and all of the ninth-grade classes were administered the *Cooperative English Test*, Parts A and B, at the completion of the course. A sample of 37 matched pairs was drawn. The eighth-grade sample had a mean scaled score approximately 5.5 points lower than the ninth grade on both Parts A and B, for total means of 104.71 and 115.81. On the basis of the *Cooperative English Test*, there is a significant difference in favor of ninth-grade students enrolled in ninth-grade English classes over eighth-grade students enrolled in ninth-grade English classes. The real test, however, is whether they will be more proficient in English at the end of the twelfth year as a result of taking ninth-grade English in the eighth grade.

General Science Evaluation. The general science evaluation posed somewhat of a different problem in that general science is not offered to capable ninth-grade students. They take biology as their first science

¹ Siegel, S. *Nonparametric Statistics*. New York: McGraw-Hill 1956. P. 68.

course. As a result, it was decided to match the eighth-grade students taking the accelerated general science course with eighth-grade students taking the regular general science course. A Sign Test was applied to the 10 matched pairs available, and the null hypothesis of no difference was accepted. At this point, it was felt that the general science evaluation should be carried further due to the limitations described above. Such evaluation will be done during the 1959-1960 school year.

Discussion of Results

Student and Parental Responses

1. There seemed to be general agreement among the students and their parents as to the desirability of (a) college attendance and (b) a four-year high-school program.

2. The parents of the girls noted an excessive amount of homework as compared to parents of boys; the boys themselves, however, noted an excessive amount of homework as opposed to the girls.

3. The parents felt they understood the program, the students had a good understanding of why they were chosen, and there was general approval of the program by both groups.

4. Of the students eligible for a five-year program in English, science, or mathematics, there appears to be a rather marked disinterest in an extensive science program, and considerable interest in a five-year English program.

5. Parents of students taking three accelerated subjects expressed more enthusiasm than parents of students taking fewer accelerated subjects.

6. The parents felt that the program had not produced any change in participation in extracurricular activities.

7. Only four of the 59 parents responding felt that this program had produced too great an academic emphasis.

Limitations

1. Up to this point no mention has been made of the appropriateness of the test choice in terms of the objectives of the particular subject. Intuitively, it is felt that the algebra and English tests were compatible with the course objectives. There appears to be some question in regard to the science test. Few general science tests are available and there has been a minimum of curriculum work done in general science. Programs such as the National Science Foundation Institutes for elementary and secondary science personnel should develop the science curriculum at all levels, including the junior high-school level.

2. Even though responses were obtained from parents and students, it is felt that this evaluation has been weighted toward the standard testing program. Part of this is justified in terms of the philosophical reasoning for establishing the program. In addition, regardless of the objectives of any course, mastery of certain skills must be included as part of those objectives. It is felt, however, that certain other areas should have been evaluated, including attitudes of students, teachers, and parents not associated with the accelerated program.

3. Much of the evaluation of the program needs to be followed through into the high school. This applies not only to the type of programs which

these students take, but also to the type of work which they do, particularly in English.

4. Finally, it should be emphasized that reference to comparative achievement levels of eighth- and ninth-grade students was in reference to above average students. In the case of the eighth-grade students, they were a highly selective group, chosen on the basis of several factors relating to probable success in the accelerated program.

Provision for Acceleration in High School

Logically if a school encourages superior students to take subjects at least one year earlier than usual, some provision soon must be made for them to take subjects traditionally reserved for college. This is especially true if most of the students prefer to attend high school for four years and do not wish to be graduated in less time.

Providing numerous college courses in a high school is difficult, however, for the highly trained teachers are scarce and the necessarily small enrollments in these courses make them exceedingly expensive. One excellent, partial solution to this problem involved the cooperation of the University of Illinois. In September 1959, the University of Illinois announced special provisions for admitting selected, talented, secondary-school seniors. High-school seniors who met the University of Illinois' exacting standards were permitted to take one university course each semester of their senior year in high school. They may take two courses in the summer preceding their senior year.

Undoubtedly a few other colleges and universities have inaugurated this policy, but, in the hope that many others may wish to encourage and further the education of superior high-school seniors, the announcement of the University of Illinois is given below.

REGISTRATION IN THE UNIVERSITY OF ILLINOIS OF HIGH-SCHOOL STUDENTS OF UNUSUAL ABILITY

The University of Illinois is pleased to announce the special provisions outlined below for the registration of selected talented secondary-school seniors. These provisions will be effective in September 1959.

1. Talented seniors of Illinois secondary schools shall be permitted to enroll for courses at the University of Illinois.

2. Those talented seniors shall be recommended to the Dean of Admissions. The Dean of Admissions, the Head of the Department concerned, and the Dean of the College concerned shall determine whether the student is capable of taking certain courses for University credit. Such students shall receive University credit upon the satisfactory completion of these courses. They shall be given advanced placement when they register in the University. They shall, prior to admission to the University as full-time students, be graduated from high school and meet the other University requirements.

3. The school administrators shall base their recommendations upon the merits of each individual case, taking into consideration the ability, grade

point average, test results, and the available time of each individual so recommended.

4. The courses taken by such talented seniors at the University shall be work over and above the regular secondary-school curriculum.

5. The work load of each individual recommended for work at the University of Illinois should be determined by the local high-school principal and the University.

6. Normally such work taken at the University of Illinois should not be used to accelerate a secondary-school student at the high-school level, but shall be used as a means of broadening and enriching the student's educational program.

7. Each such student will be subject to fees as outlined in the Undergraduate Catalog.

8. Application, recommendations, and other information concerning such talented students shall be made to the Dean of Admissions at the University of Illinois.

August 31, 1959

THE TEACHER AND THE TEACHER AIDE

During the past school year, 1958-1959, the business education department of the Urbana High School participated in a staff utilization study to determine whether, by the use of teacher aides, better pupil learning could be developed if the teacher could be relieved of most of his routine clerical work while at the same time carrying a heavier pupil load.

After some deliberation, the decision was made to carry on the study in typing, shorthand, business problems, and bookkeeping. Mrs. Kathleen Martin taught the four typing classes and the one shorthand class involved in the study, and Jack McNevin taught the two bookkeeping classes and the two business problems classes included in the study. Each teacher had the services of a full-time teacher aide. These teacher aides assisted the instructor in grading papers, checking the roll, filling out required reports, and other clerical chores which teachers ordinarily would perform. Various audio-visual helps such as tape recorders, voice amplifiers, record players, overhead projectors, and opaque projectors were used.

EVALUATION

Originally it was planned to consider the experiment successful if two questions could be answered in the affirmative. *First*, did the students in the large classes learn as much as students in classes of 25 to 30? *Second*, did the teachers feel that their work was more pleasant and successful than it otherwise would have been?

Evaluation of Large Beginning Typewriting Classes

Of the four subjects in which the experiment was conducted during the past school year, the most satisfactory results from both the student's

and the teacher's viewpoint were obtained in the typing classes. The typing students were tested for speed and accuracy at the end of the first semester and again at the end of the third nine-weeks period. Twenty-seven students in the large beginning typing classes could be matched with twenty-seven students in the smaller beginning typing classes of 1957-1958. In general, students from the large beginning typing classes of 1958-1959 taught by a teacher assisted by a teacher aide did slightly better work than the smaller classes of 1957-1958 taught by a teacher only. The slight differences found between the classes in terms of "t" values were not significant at the five per cent level.

The typewriting teacher felt that the physical facilities in the typing room, a rectangular room measuring 65 by 21 feet, were far from ideal. In spite of the teacher aide, she felt an added physical and mental burden from the larger classes. Although admitting better results with the larger classes and the teacher aide, she is not sure that the pace required could be continued indefinitely. From the teacher's viewpoint, the experiment with large classes was, at best, only a qualified success during the first year. We are continuing the experiment during the 1959-1960 school year.

A Student Questionnaire. A questionnaire was given to the typing students to determine their opinions and attitudes toward the study. A listing of their replies seems to indicate considerable approval and comparable little dissatisfaction.

Question: Do you think you have received much better, better, the same, or less understanding of the subject matter than in regular classes?

Tabulation: Much better, 8.9%; better, 23.7%; same, 53.7%; less, 13.4%

Question: Do you feel that the opportunity for class discussion between you and your classmates has been adequate or inadequate?

Tabulation: Adequate, 90.2%; inadequate, 9.8%

Question: If you had it to do over again, would you rather take your business education in a smaller business education class without the teacher aide or a larger class with a teacher aide?

Tabulation: With the teacher aide, 68.2%; without the teacher aide, 30.8%

Question: Do you think the size of this class influenced your grade?

Tabulation: Yes, 32%; no, 66.1%

Question: Did you enjoy the class with the teacher aide much more, more, the same, or less than regular classes?

Tabulation: Much more, 16.8%; more, 31.6%; same 38.2%; less 13.3%

Evaluation of Large Beginning Shorthand Class

Of the four subjects in the business education department which were included in the experiment with teacher aides, probably the least satisfactory results were obtained in the shorthand classes. The instructor felt this primarily was due to the subject itself. In shorthand the stu-

dents must learn to write a strange new language, and they must be close enough to the teacher to view the intricate combinations of circles, straight lines, slanted lines, over and under hooks and curves, upward strokes, and downward strokes. The physical facilities in the 65 by 21 foot room used for shorthand were far from ideal and contributed to the difficulty of establishing a good teaching situation.

Analysis of Shorthand Speed for 1958 and 1959. In making an end-of-the-year comparison of the 1958 and 1959 classes, dictation speed on new matter transcribed with 95% or better accuracy was used as the unit of measurement.

BEGINNING SHORTHAND
New Matter Dictation with 95% or Better Accuracy

<i>Speed</i>	<i>1958</i>	<i>1959</i>
5 minutes at 60 words a minute	80% of class	76.4% of class
3 minutes at 80 words a minute	60% of class	38.2% of class
5 minutes at 80 words a minute	60% of class	35.3% of class
5 minutes at 90 words a minute	40% of class	17.6% of class
3 minutes at 100 words a minute	20% of class	11.7% of class
5 minutes at 100 words a minute	10% of class	8.8% of class
3 minutes at 120 words a minute	5% of class	2.9% of class
5 minutes at 120 words a minute	5% of class	2.9% of class

The minimum speed requirement for this phase of the course is 60 words a minute for five minutes with 95% or better accuracy. As can be seen, the 1958 class did excel in each speed range. The mean DAT score obtained on the *Illinois High-School Junior Testing Program* was also calculated for the 1958 and 1959 classes. The results obtained from this comparison were as follows: 1958—51.8; 1959—46.09.

Conclusion. We tentatively concluded that the experiment with the large (65 students) shorthand class taught by a teacher with the assistance of a teacher aide was not particularly successful. The combination of the nature of the subject and the rather inadequate physical facilities resulted in less than satisfactory results. The experiment is being continued through the 1959-1960 school year and it is hoped to achieve more success by improving our procedures.

Evaluation of the Large Bookkeeping and General Business Classes

A bookkeeping class of 52 students and a general business class of 72 students were taught in the Urbana High-School cafeteria by a teacher assisted by a teacher aide. The teacher aide was a high-school graduate. She graded the papers, kept the required records, typed the examinations, and did the other varied clerical work of the two classes. Each student turned in written work almost every day. The papers were promptly graded and returned to the student the next day.

The instructor considered the experiments worth while and, on the whole, successful although he felt that the physical facilities needed improvement. Students had difficulty in seeing the chalkboard, hearing the instructor, and some of them felt that they did not get enough help from the teacher. The teacher believed that the better students were able to profit as much from the larger classes as they would have in the smaller classes. The slower students may have done better in the smaller classes.

The experiments with the large bookkeeping class and the large general business class were not continued last year because of an increased enrollment and an overcrowded building. A new addition to the secondary school opened this fall, offers provision for experiments with large classes and the use of teacher aides in bookkeeping and general business as well as in other areas.

NEXT STEPS

The study in homogeneous grouping and acceleration is so comprehensive in scope and seems so promising that we will continue to emphasize it and very likely will increase the time and energy spent upon it. We hope to improve the secondary education of superior students and alleviate one of the weaknesses of many high schools—the failure to challenge the very able students.

An exciting and very important element of our program of grouping and acceleration involves the decision of the University of Illinois to permit selected, talented high-school seniors to enroll in a university course each semester. Two seniors from the Urbana High School have been permitted to enroll in one course in the University. We hope to have more the second semester. We feel that this offers tremendous possibilities and are looking forward to exploring the ramifications of this project.

Our projects using a teacher and a teacher aide to teach large classes in typing, shorthand, general business, and bookkeeping have suffered from inadequate facilities. This deficiency was corrected in September 1960, when new building additions were completed with provision made for at least five projects in better staff utilization.

Summer Workshops on Staff Utilization

J. LLOYD TRUMP
VIRGIL W. GILLENWATER
CHARLES D. ROWLEY

FIVE summer workshops, each three days in length, were sponsored during 1959 on an experimental basis by the Commission. These workshops were planned and directed by the secondary-school principals' associations of Minnesota, Texas, Arizona, Iowa, and South Carolina. In each instance the workshops were held on the campus of a higher education institution which also supported the project through provision of facilities and personnel. Also in each case, the state department of education was a participating sponsor.

The purpose of the workshops was to provide interested teachers and principals with an opportunity to meet in closer contact with members of the Commission, representatives of higher education institutions and state departments of education, and persons actively engaged in experimental projects. Opportunities were made available for obtaining information and engaging in discussion. Actually these workshops constituted another effort on the part of the Commission to report to junior and senior high-school principals about the staff utilization studies sponsored by the Commission. The workshops were held in the summer so that principals and teachers might find it easier to attend.

The Commission, through funds made available to it by the Ford Foundation, provided financial support in the range of \$1,000-\$1,500 which was granted to the state principals' association to pay expenses of outside consultants and to prepare and distribute a report of the proceedings. Reports will be mailed in most instances to all principals of the state regardless of whether or not they were in attendance at the conference. Teachers and principals attending the conference did so at their own expense.

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The workshops appear to have been quite successful. The Commission hopes that similar workshops may be held in many other states. Although the amount of funds available to the Commission for supporting such conferences is not large, and certainly would not permit financial support at the amounts indicated in the preceding paragraph in all states, representatives of state principals' associations interested in conducting conferences during the summer of 1961 are urged to get in touch immediately with the Director or Associate Directors or some member of the Commission.

At the time copy had to be submitted for this issue of *THE BULLETIN*, three reports of state conferences were available. Summaries of the other conferences will be distributed to interested persons. The subsequent reports from Arizona and Iowa and the brief summary from Minnesota are representative of what took place at the conferences.

ARIZONA REPORTS ON ITS SUMMER CONFERENCE

A regional conference on staff utilization was held on the campus of Arizona State College, Flagstaff, July 14 through July 17, 1959. The conference was sponsored by the Arizona Association of Secondary-School Principals, the State College and Universities of Arizona, and the secondary-school principals of Nevada and New Mexico, under a grant from the Commission on Experimental Study of the Utilization of the Staff in the Secondary School of the National Association of Secondary-School Principals.

Approximately one hundred fifty school administrators from Arizona, Nevada, and New Mexico attended all or a part of the conference—the first of its kind to be held in any of these three states. Visiting consultants that insured the success of the conference included: Robert Moore, Associate Director, Commission on Staff Utilization, NASSP, Stanford University; Dr. James D. MacConnell, Director of Schools Planning Laboratory, Stanford University; Clifford Skinner, member of the NASSP Commission and Principal of Washington High School, Portland, Oregon; William Nesbitt, Prefect Supervisors, Snyder, Texas; officers of the Arizona Association of Secondary-School Principals; and members of the staff of the Teacher Education Division of Arizona State College, and of the College of Education of Arizona State University and the University of Arizona. Dr. Virgil W. Gillenwater, Executive Dean of Arizona State College, acted as general chairman and coordinator.

The purposes of the conference outlined prior to the meeting were:

(1) to analyze the findings of the experiments conducted under the auspices of the commission; (2) to present demonstrations in the use of electronics and mechanical aids in teaching; and (3) to provide opportunities for participating school administrators and teachers to analyze their own programs in the light of possibilities presented. A fourth purpose might well have been to enable school administrators of the three states to share views concerning common problems and to talk

privately with the consultants whose experiences provided rich and varied backgrounds. There appeared to be unanimous agreement at the end of the conference that all objectives were fulfilled.

The four-day program followed earlier outlined plans. The first morning was devoted to registration. During the afternoon of the first day, Mr. Moore outlined the early work of the Commission and briefed some of the more important experimental projects that the Commission had sponsored.

The need for further exploration in the area of staff utilization was carefully discussed in the light of the expanding problems facing the secondary schools of the nation. Mr. Moore's presentation placed a challenge before all participants to examine carefully present practices and needs and to pay particular attention for the remainder of the conference to suggestions and proposals that might be shared by the visiting consultants—men who had participated in the Commission's work from the beginning.

The second day of the conference was devoted to demonstration teaching in science and foreign language and to scheduling possibilities that might be provided by a better use of staff which should insure, in most cases, in better instruction.

In the morning session, Mr. Nesbitt demonstrated the use of the overhead projector—its advantages and disadvantages. Team teaching with the focus on finding the best instructor to accomplish a particular task that he had had an adequate amount of time to prepare for was thoroughly reviewed and discussed. Following the demonstration phase of the program, the large group was divided into three groups for intensive discussion.

The discussion periods brought out central questions for perusal and conclusions. Among these were:

1. Does grouping in such large numbers create disciplinary problems? *Conclusion:* Teacher preparation is intensified to the extent that interest was created thereby preventing many problems that would normally arise.

2. Is it possible to correlate materials by the team teaching approach? *Conclusion:* When teachers have adequate time for preparation, there is no reason why subject matter correlation could not be enhanced if desired.

3. What about the matter of mixing high and low ability pupils? *Conclusion:* More experimentation is needed in this area. High ability students can be placed in situations where they are more dependent upon themselves. Individual and group projects can flourish under supervision.

4. Will the average community accept the thought of non-professional persons being involved in a school situation? *Conclusion:* A community project can "sell" a community on the merits of non-professionals assuming clerical duties that can be of real value in the entire instructional program.

5. Can we sum up the chief advantages of team teaching? *Conclusion:* We presently do not allow enough time for planning and preparation of instructional materials. Too many of our teachers go into class unprepared. Team

teaching offers some distinct advantages here. This approach does take advantage of all abilities of the teachers involved in such areas as mathematics and science. This would be of value due to the scarcity of teachers. The pupils in any school would in this way get the best the school could offer. Teacher morale should be improved inasmuch as special assignments could be fitted to special competencies.

During the afternoon, scheduling was discussed by Mr. Skinner. The point was made that, if a larger school wanted to try team teaching, say in biology, there would probably be no great scheduling problem involved. In view of the fact that several biology classes met at the same period, teachers involved in these classes could do considerable planning together without scheduling conflicts. It was pointed out that we really do not have to fear public opinion in this type of planning since there would be no great changes in the programs of the pupils. In reality, when team teaching is used, individual differences of pupils may be better cared for than in regular classes. As a result, there is less likely to be conflicts with members of the community.

Schedule and teaching flexibility were given consideration. It was generally agreed by the group that in secondary schools it was difficult to set up a hard and fast schedule, especially with respect to team teaching. Certain experimental schools always schedule a large group on Monday. It was felt that this might be a questionable practice. Mr. Moore reported that in one school he visited (4 teachers involved—social studies, language arts, speech, and librarian) the speech teacher was in charge for only five minutes while the language arts teacher took the rest of the two-hour period. The next day the social studies teacher utilized most of the two-hour period. He felt that the students responded best in situations where flexible programs were in evidence.

The expense of setting up a program involving team teaching was considered. The group decided that there was no immediate need to obtain such a device as the overhead projector to improve instruction. Much could be done by the various teams without much expense. Additional audio-visual aids could be obtained at a later date.

Several administrators seemed interested in initiating team-teaching programs. Mr. Moore indicated that, if a person was interested in obtaining additional information on experimental projects presently in operation in various parts of the United States, he should: (1) consult the January 1958 and 1959 issues of the *NASSP BULLETIN*; (2) either write to the director of the project, or send teachers to project centers to obtain the needed information.

More specifically, the following points were agreed upon:

1. The department heads must be in favor of any new idea to utilize staff better. This implies informing department head of values and "selling" him on the idea of beginning something new.
2. It is best to begin the new program slowly, rather than taking the whole schedule of classes and struggling along.



Group at South Carolina Workshop observing demonstration of overhead projector.



Participants in South Carolina Workshop examine some of the audio-visual aids equipment on display.

3. Experiment with the new program and use part of the old program as a control to determine any change.

4. Cost of operation may not be reduced; the prime objective is not that it should be, but rather that learning and instruction be improved.

5. More student responsibility must be a part of a staff utilization program. Students must accept more responsibility for their own learning.

6. More teacher direction will be needed to replace our old concepts of all-out teacher supervision of student learning in order to help students become more independently responsible.

7. Blocking out double periods will facilitate some type of classwork.

8. Scheduling sections of the same classes at the same period will help facilitate the use of team teaching.

9. Small schools will have to cut-across subject lines and class boundaries to make team-teaching possible.

10. Two-member teams seem to work best in the beginning of team teaching programs.

11. Some subjects need not be taught daily.

12. Some subject matter can be taught better to large classes of nearly a hundred or more.

13. Flexibility in the length of class periods will need to be considered.

14. Lengthening of class periods and using schedules which eliminate formal study halls will aid a staff utilization program.

15. Scheduling longer class periods and setting schedules up so classes do not meet daily facilitate teacher planning and preparation.

During the morning session of the third day, another demonstration period was provided by Mr. Nesbitt. The areas of social science and the language arts were explored. Group discussion following helped produce some of the questions and tentative conclusions previously noted under the Wednesday morning session.

Dr. MacConnell gave an excellent presentation on the planning of physical facilities for the future. The following represents the highlights of his talk. Those of us who know Dr. MacConnell realize that no printed matter can do justice to his presentation.

Projection studies that look ahead further than ten years in the future must be made by responsible persons who are planning for physical facilities to educate the youth of the future. These persons must inform their public through citizen groups that can be formed and kept informed. The school personnel, of course, must furnish information to these citizen groups, lead them, and direct their efforts.

Professional meetings need to be planned where architects and educators can study together in planning for future physical facilities. At present there is a wide gap between them. This need not be since both parties see the value of getting together and determining the needs and problems of each. There is a need for better communication with all building experts; for example, the contractors, architects, and others involved in total building programs. A prime necessity is that of setting

up specifications preceding the actual building. Although this is time consuming, it is a necessity.

Specifications that provide for flexibility in our building's use are important for the educational facilities of the future. One of the most profitable experiences in building programs is that of having teachers tell the architects and administrators what type of teaching and educational programs are to be present and then let the architects draw the plans. Teachers need then to check these drawn plans to see if there is agreement with the things that were presented to the architects and the administrators. This is time consuming, but time must be taken when you realize that this building may be with you for the next 50 years. Of great importance in any building program is that all parties have faith in research and expert opinion that is known and respected by both architects and educators.

An important consideration today is that of finding funds now to buy school sites for the future. We all realize that costs are skyrocketing and will be even higher in the future. Investments in school sites now when it is known that population increases will force us to provide future school sites are sound business investments. Aerial photographs of the community's growth can be presented to the citizens of the community to help describe their school building needs. These aerial photographs will help them realize where and how soon school sites will have to be acquired.

The purpose of the building is that of facilitating the curriculum. In planning physical facilities for the future, it must be remembered that the curriculum of the future will decide certain building restrictions and innovations. Certain aspects must be considered which will affect the construction of a new school building, such as class size, the building materials available, and a knowledge that these building materials will change in the future and effect new construction, teaching methods, different climatic conditions, and school organizational patterns.

During the final session on Friday morning, a team made up of the visiting consultants explored the chief points of interest of the conference. The following points of summary are inconclusive but important.

MOORE: Team teaching may be of considerable value in upgrading instruction in that more planning time is made available to the teachers involved, and it is possible to complement the talents of individual teachers.

Clerical assistants may also be used to advantage in freeing teachers for use in planning for the improvement of instruction. It is possible for teachers to hold in-service meetings to ascertain the non-professional functions that clerical assistants can best perform.

Mechanical aids, such as the overhead projector and the tape recorder, can be utilized with more than satisfactory results in educating secondary-school pupils. The overhead projector may eliminate the need for

blackboards in some classrooms. When appropriately used, the tape recorder, as evidenced by the experiments conducted in Omaha, Nebraska, can free the teacher for additional planning or for work with different ability groups.

While one teacher is instructing the large group, the other member(s) of the team may use this time to give attention to individuals of different ability. Attention may be given on an individual or a small group basis.

Many schools made satisfactory use of such facilities as the auditorium, the cafeteria, and the library for large group instruction.

One of the best ways to utilize teachers in planning is to involve them in summer workshops. This may be one way to improve salaries for teachers of exceptional ability. No single program is best for all schools. The type of experimental program should depend upon the needs of the pupils of each community.

NESBITT: When using instructional assistants (clerks), begin the program on a small scale. Watch to see how well the clerical assistants and teachers work together. By all means, if they do not work well together, don't press for cooperation. All teachers cannot work well with clerks. In order to avoid community disapproval, make certain that clerical assistants do not assume professional roles.

SKINNER: From the experiences we had in Oregon, it would seem advisable to start the experimental program slowly and, to do only that which can reasonably be done. Take the plan, *Images for the Future*, for example. Utilize only those ideas that your school can do comfortably. Start by working together, analyze, change direction, and, as a result, you will make the best progress. New plans should be flexible. If administrators will use this approach in developing experimental programs with their teachers, I'm sure they will obtain optimum cooperation.

MACCONNELL: One of the big problems in the development of this type of educational program, and the facilities to house the program, is the necessity for planning. Take the organization of administrative units for example—before beginning the building, it would be well to know specifically whether the 6-3-3 or 8-4 plan will be used.

Reorganization of smaller school districts should also be considered as a means for upgrading the educational program. In the event that reorganization may not be accomplished in the near future, it would be well for responsible educators to consider one of the following devices for improving instruction in areas where there is a scarcity of certain teachers:

1. Sharing of teachers (say for mathematics or science) among school districts is a possibility. This is already being done in certain midwestern communities.

2. Have top-flight scientists speak to 150-200 pupils in some centrally located town.

3. Transport pupils to communities where teachers and facilities are excellent.

MOORE: On this same subject, it would be well to point out that large schools often use small schools for the purpose of training teachers. When a teacher has proved himself in a small school, he is usually employed at the larger school. However, in the schools involved in the Rocky Mountain Project (where experimental procedures were in effect), not a single teacher left to teach in a larger school. There seems to be something about experimentation that appeals to teachers and as a result their morale is higher.

It might be well for administrators, instead of duplicating the talents of teachers in mathematics and science, to employ teachers to complement the weaknesses of the best teachers already in the school. Another possibility would be to upgrade one or two teachers already in-service. Released time might be given to teachers to enable them to attend school for the purpose of preparing themselves for teaching mathematics and science courses.

Still other possibilities include the use of the town druggist or physician, as well as the use of films. The *Harvey White Physics Film Series* may be employed in instructing physics pupils in situations where no instructor is available.

Following Mr. Moore's statements, Peyton Reavis called for questions from the audience. The questions and answers by members of the forum follow:

In using clerks, does the teacher lose out on mistakes the pupils make and, as a result, be unable to judge accurately their progress?

MOORE: The statement is often made that the teacher might not be able to judge the pupil's progress adequately if he does not grade the pupil's paper in its entirety. It would seem that the best approach would be to identify carefully those things that the teacher and the clerk can do best.

Is the teacher doing a good job grading themes anyway?

NESBITT: The first theme gets the most attention in most cases and the last the least. If possible, have the clerk tally the errors in spelling and grammar and make these available to the teacher. The teacher then can handle the subjective aspects of the papers.

With respect to experimentation, what can we do within the regulations set by the state and by the North Central Association?

MOORE: Check with the state and North Central Association Officials. So many times administrators make the wrong interpretations of rules and regulations of accrediting agencies. Find out what latitude is allowed. You'll be surprised what you can do.



All of the participants in the Arizona Workshop.



Participating Consultants in the Arizona Workshop.

CROWELL: The North Central Association is interested in experimentation in their member schools. In fact, experimentation is generally encouraged.

MOORE: In summary, it might be stated that the educational program is determined by the climate set by the school officials. If they will not try anything, nothing will be done. Many times administrators feel that teachers do not want to be involved in experimental programs. Generally, this is due to a lack of communication between the administrators and their teachers. Where adequate lines of communication between teachers and administrators are developed, experimental attitudes can generally be fostered.

The conference was officially ended at noon on the fourth day except for the staff meeting for an evaluation and future planning period. By way of summary the following ideas appeared to take shape.

1. In spite of the Commission's earlier work, too few educators have read "Images" or considered the implications. All are aware of problems, but some means suggested to solve theirs appear to be quite unsound as they discuss them for the first time.

2. More attempts need to be promoted to bring school men and women together to discuss topics such as those covered by the workshop.

3. Plans were made to distribute conference results to all participants and to other personnel insofar as funds might allow.

4. The Arizona Association of Secondary-School Principals produced an interest to pursue this topic further—with additional Commission grants if possible—otherwise on a more curtailed basis.

5. The conferees agreed unanimously that this was one of the most thought provoking and important conferences that had been held in the state and expressed a desire to follow it up in some fashion.

MINNESOTA ASSOCIATION OF SECONDARY-SCHOOL PRINCIPALS SUMMER WORKSHOP

Teacher Utilization was the theme of the Eleventh Annual Summer Workshop of the Minnesota Association of Secondary-School Principals held at Bemidji, Minnesota, June 12 to 15, 1959. A total of 187 high-school principals attended the four-day workshop at Lake Bemidji in the glorious Paul Bunyan Land in Minnesota's rich resort country.

Dr. George Selke, Commissioner of Conservation of the State of Minnesota and former Chancellor of the University of Montana, spoke on the importance of education to the Minnesota State Legislature and reviewed the accomplishments of the 1959 biennial session.

Speaker at Saturday morning's session was Dr. J. Lloyd Trump, Director of the NASSP Commission on the Experimental Study of the Utilization of the Staff in the Secondary School. Dr. Trump spoke on "Images of the Future in Staffing Secondary Schools." Glenn F. Varner, Assistant Superintendent of Schools in St. Paul, was chairman of the session. Considerable discussion followed the presentation. The Saturday evening

meeting, the third general session, got under way after the chairman, Mr. Miles Anderson, introduced the three speakers.

Mr. Curtis Johnson, principal of the Alexander Ramsey High School, Roseville Public Schools (St. Paul Suburban Schools), told of using laboratory assistants in science courses and the implications for other high schools that might contemplate the use of such assistants in high-school science courses. Details of this project are presented on pages 13-48 of the January 1959 issue of the NASSP BULLETIN.

William Scanlan, Consultant in Teacher Recruitment Project, St. Paul Minnesota Public Schools, reported on the progress of the study to date. Reports of this study with implications for teacher education and staff utilization are provided in the following NASSP BULLETINS: January 1958, pp. 94-114; January 1959, pp. 120-148; and January 1960, Chapter X.

Dr. Kenneth R. Doane, Head of the Department of Education, Hamline University, discussed the "Implications of the Teacher Utilization Studies" for other schools. He emphasized particularly the proposed projects to begin at Johnson High School in St. Paul and at Sibley Senior High School at West St. Paul, Minnesota. These studies emphasize the advantages of large group instruction in American history and senior social studies. The following premises underlie the formulation of hypotheses, procedures, and evaluation:

1. Teacher time and energy should be conserved for professional activity.
2. Pupil growth must be preserved. Evaluation is crucial in such factors as reading comprehension, American history information, individual study skills.
3. Pupils should be responsible for their own growth; this includes attention to school tasks, self-discipline in study, and active participation in an intensive education in American history or social studies.
4. There is a ready transfer from high-school work carried on in large classes to the situation as college students.
5. Participating in an experiment will be an in-service stimulus for the faculties involved at both high schools.
6. Teacher interest is fundamental to success in the experiment.

Dr. James G. Umstattd, Professor of Education at the University of Texas, was the speaker at the fourth general session on Sunday afternoon. He discussed "Experimental Scheduling of Classes."

The fifth session opened Sunday evening with a discussion of "Closed Circuit Television" presented by Miss Wanda Mitchell, television teacher at Evanston Township High School, Evanston, Illinois. Farley D. Bright, Assistant Commissioner of Education of the state of Minnesota, discussed "State Department Attitude Toward Experimentation."

At the sixth and final session held Monday morning, June 15, Dr. J. Lloyd Trump spoke on "Possible Applications of the Utilization Program to Minnesota Schools." In this meeting, he reviewed the significant studies taking place under NASSP supervision across the nation and the implications for Minnesota schoolmen and school women, particularly for

high-school principals. The closing remarks were made by Dr. Robert Keller, Professor of Education at the University of Minnesota. A detailed report covering the foregoing addresses and discussion will be widely distributed in Minnesota.

SUMMARIES OF ADDRESSES AT IOWA WORKSHOP

Dr. Wayland Osborne, Assistant Director, Division of Curriculum, Iowa Department of Public Instruction, spoke on "Standards, Experimentation, and Certification—A State Department Look." He stated that the standards which are finally recommended to the State Board of Public Instruction for adoption are a reflection of a statewide consensus. The standards do reflect current or past practices and thus tend to preserve the *status quo*. There is no denying the fact that with certain minor exceptions these standards, as stated, are expressed in terms of the traditional or conventional organization of schools.

Dr. Osborne made it clear that the State Department of Public Instruction welcomed experimentation. To support this statement he quoted from page 5 of the department's 1958 publication entitled, *How Good Is Your Local School System?* as follows: "The department does not desire to be understood as saying that this bulletin represents the last word regarding good schools. Where there is vision on the part of local school systems as to new things which might profit the pupils, the department encourages well-trained and thought-out experimentation. Good schools are always looking ahead to better ways of reaching the goals of education."

The position of the department was further expanded when Dr. Osborne said they recognized that experimentation is a significant factor in achieving educational progress.

"Many improvements," he emphasized, "which have been made in educational administration, supervision, and teaching methods have come out of experimental deviations from standard patterns." He further declared that experimentation should be based on realistic planning procedures, be carefully controlled, and be evaluated frequently by means of the best devices available. In the area of certification, Dr. Osborne said that "All we're after in certification is to be sure the person is *qualified* to do the job." In closing, Dr. Osborne suggested that *Images of the Future* is a working document and should be used wherever possible.

Alfred Schwartz, Dean of the Community College, Drake University, spoke on "How the Public and the Taxpayers View New Developments in Secondary Education." He, in alluding to his school days at Crane Technical High School in Chicago, illustrated that his parents as well as others, when asked what they wanted their children to get out of school, would simply reply, "A good education." According to Dean Schwartz, "We have become much more sophisticated in recent years. We expect the schools to teach specific skills and we expect certain outcomes."

It was pointed out that the schools have been deluged by a torrent of criticism engendered by many individuals and by many groups. Some of the criticisms leveled at the schools are: (1) the schools are neglecting the three R's, (2) our high schools are not sufficiently challenging the bright students, (3) private and parochial schools are doing a better job of preparing students for college than are the public schools, (4) the public schools are lax in teaching moral and spiritual values, and (5) discipline is totally lacking in our high schools.

Dean Schwartz said that he was not inclined to be one who wants to dismiss the charges lightly because he feels that in some of the charges there is evidence to indicate that there are things that need to be improved. He further stated that one of the major reasons for this intensified interest in public education, at least public secondary education, in this country is that it has moved from childhood to adolescence. The question now raised is, "Can we tolerate some of the things that our public schools did when they were youngsters now that they are adolescent and moving into full maturity?"

Another cause for the increased criticism of the public schools is the National and International tensions which currently exist. A third reason why the public is concerned about our schools is due to increased costs which mean higher taxes in Iowa, where almost ninety percent of the money needed for schools comes from the local source. It is no wonder the taxpayers question the cost of providing a good educational program. A fourth reason the schools are criticized is because there is a tremendous need for specialized kinds of talents in our country. The schools are expected to provide the country with well-trained, competent citizens.

Dean Schwartz indicated that it was difficult to find out what the public expects of its schools because a public attitude varies due to: (1) the size of the community, (2) the educational level of the community, and (3) the expectations of a community. However, he felt that, by and large, the public thought that the schools were doing a satisfactory job of educating the youngsters of our country.

Here are some of the present demands of the public upon the schools: (1) a curriculum that is designed for all students, (2) methods that produce results, (3) better motivation of youngsters, and (4) greater efficiency in the learning process.

In conclusion, Dean Schwartz said, "We need to develop an educational system that places a premium on the work of the individual, encouraging the gifted but not neglecting the average. We need to foster the ideals of democracy in all of our actions and to work to make scientific thinking a part of our existence, not because our leaders say we must, but because we believe that we should. We need to take careful stock of what we have done, what we are doing, and what we can do to educate for the future. We should not be panicked into crash programs that jeopardize what has taken us hundreds of years to get. Let the challenge of education be our goal for the future."

Dr. J. Lloyd Trump, Director of the NASSP Commission on the Experimental Study of the Utilization of the staff in the Secondary School, spoke on "Images of the Future." He was obviously pleased to hear Dr. Wayland Osborne of the Iowa Department of Public Instruction state that the department encouraged "well planned, thought-out experimentation." The stress that Dr. Osborne placed on the need to improve methods of instruction also impressed Dr. Trump. He stated that, in the past several decades, we have had a number of excellent projects designed to improve the content of what we teach. These fine efforts have received relatively little attention and as a result the role of the teacher has been neglected.

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Dr. Trump used slides to reinforce some of the ideas that are discussed in the *Image of the Future* brochure. He pointed out three basic ideas suggested in the brochure. They are: (1) concern about the organization of instruction—this is a part of the basic philosophy that, instead of all instruction taking place in the same sized group, there are some things which can take place in larger than usual groups, some in small groups, and some on the basis of individual study. It was emphasized that the methods of instruction as well as the content to be covered must be entirely different in each of the three groups and that future experimentation is still needed in this connection, (2) The second basic idea is concern for the way in which schools are staffed; (3) the third basic concept concerns itself with additional avenues of learning. In this connection, Dr. Trump said that effective use of electronics and mechanical devices must be studied.

Using these three basic features in *Images of the Future* suggests that: (1) the schedules of classes for both teachers and pupils ought to be materially different; (2) there should be opportunities for youngsters to get into the schools on Saturdays; (3) teachers should be given time to prepare their lessons, to keep up professionally, and to improve operations; (4) school facilities need to be flexible; (5) more community resource people should be used, and (6) the team teaching approach should be used.

A question and answer period followed Dr. Trump's formal presentation of the NASSP project. This session permitted a deeper probing of the activities conducted by Dr. Trump and his associates. Dr. Trump answered such questions as "What schools are actually following this kind of program?" "How do you get such a program as 'Images' started in a school?" and "How do you schedule the 'Images' kind of a program in small schools?"



Closed-circuit television demonstration used in the South Carolina Workshop.

Glenn F. Varner, Assistant Superintendent for Secondary and Vocational Education, St. Paul, Minnesota Public Schools, and Member, NASSP Commission spoke on "What the NASSP Commission Is Trying To Accomplish." He said the commission started because of the threat of the crucial teacher shortage. A curriculum committee of the National Association of Secondary-School Principals, including Bill Sanford, Lloyd Michael, and Will French, thought it would be ridiculous for the principals to do nothing about the on-coming shortage. The Committee, in studying the topic thought that they saw several ways, maybe, of alleviating the shortage. One of them would be to increase the number of teachers through improved recruitment of teachers. Improving the utilization of qualified teachers and improving the status of teachers would help the profession to retain its teachers rather than losing them to industry. The grant, the first that has ever been made to an educational association, was approved. The grant is for the period 1956 to 1960. Mr. Varner explained the organizational structure of the group and mentioned that Lloyd Michael was elected chairman.

The first main function of the Commission was to select Dr. Lloyd Trump as the director of the experiment. It was the responsibility of this group, according to Mr. Varner, to get the information to the people that funds were available for experimentation and encourage people to

make applications and proposals for the funds. Grants were made as low as \$1,500 to as high as \$82,000.

Mr. Varner told of some of the various experiments that were conducted under the Commission. The individual schools carried out the experiments and were not supervised by Dr. Trump or other members of the Commission.

Mrs. Romain Gibson, Teacher, Westside School, Omaha, Nebraska spoke on "The Tape Recorder as a Teaching Tool" and "Spanish Tapes for Junior-High Use." She demonstrated the kinds of equipment she used in the Westside school and how she used it. She also demonstrated how to make tapes and use them effectively in the classroom.

J. E. Stonecipher, Director of Secondary Education, Des Moines, Iowa Public Schools, spoke on "Implications for Iowa Schools." He began his presentation by quoting the following from the AASA yearbook entitled, *The High School in a New Era*:

The American people throughout their history have held great expectations for their schools and have seen them as means to the achievement of both individual achievement and national goals and aspirations. The American schools have been wonderfully responsive to these demands. They have extended their reach downward and upward. They have contrived to enroll larger and larger proportions of the population and they have consistently broadened their offerings and services in an attempt to minister the new needs as expressed by society. Certainly the schools have not realized all the hopes placed upon them, but by and large they have the kinds of schools that American people wanted and were willing to support.

The above quotation served as the base from which Mr. Stonecipher made his presentation. He said that the two pressures that are going to be evident on the schools are the demands of patrons that their children be readied for competing in a wider market for jobs and further schooling than their home communities can provide. A second aspect that will condition the direction of our schools is the pull of alert and broadly educated school leaders who look realistically at the world about them.

Mr. Stonecipher listed the following suggestions for the consideration of the secondary principals: (1) take the next easy step, (2) take as many people with you as possible (involvement), (3) any appointed committees should be specific and temporary rather than general and permanent, (4) avoid advertising until you have something to report, (5) small steps in the right direction are vastly important, and (6) remember, "Nobody can do everything at once, but anybody can do something now."

Part V

Other Efforts and Conclusions



Saturday morning science activity showing distillation procedures and techniques. Models are made by students to illustrate various kinds of chemical bonds.—Alexander Ramsey High School, Roseville, Minnesota



One student showing others how to bend the feathers on a duck for final mounting in an evening taxidermy class. The two squirrels in the foreground are the results of first attempts at mounting by the other two boys.—Alexander Ramsey High School, Roseville, Minnesota

A Study of the Classroom Use of Secretarial Help in the Public Schools of Davidson County, Tennessee

DAVID T. TURNEY

INTRODUCTION

THIS study consists of a description and analysis of the effects of supplying secretarial assistance to classroom teachers for a period of two years in the public schools of Davidson County, Tennessee. The secretaries employed in the investigation were married women with an excellent background of training and experience as secretaries who, because of family responsibilities, were unwilling to accept full-time employment. In every case, the secretaries lived close to the school in which they worked. After their own children left for school in the morning, the secretaries would report for four hours of duty at the school. Each secretary served a group of teachers, the number varying from five to eight according to the requirements of the particular group receiving service. The term, instructional secretary, was applied to these persons in order to distinguish their function from that of the regular school secretary whose duties were primarily in the service of an administrator.

SUMMARY OF MAJOR FINDINGS

Effects of Secretarial Help on the Instructional Program

The evidence available as a result of the study clearly indicates that the teachers who participated in the program were able, with the secretarial assistance provided for them, to expand the scope of their teaching program. These teachers apparently possessed resources they had been unable to use before the help became available. The work records of instructional secretaries, the records kept by teachers, the case studies, and the insights of administrators all confirm the fact that participating classroom teachers directed the major portion of this available help toward the attainment of specific goals related to the improvement of their teaching. Secretarial service seemed to have had its main effect on the instructional program through the facility it offered for the implementation of the teaching skills developed by teacher training programs and in-service training activities.

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In addition to the unrealized potential abilities of the individual teachers, the administrative guidance given by building principals undoubtedly gave further direction to the uses made of the facility. Effective use of instructional secretaries within the staff organization of a school will be dependent upon the existence of a well-trained faculty and skillful administration and supervision of the instructional program.

The Use of Instructional Materials

The use of a wider variety and greater quantity of instructional materials was facilitated by the availability of secretarial help in two ways. In the first place, the secretary was often used by teachers as an agent for locating, ordering or collecting, and returning items available from local libraries, centers, or other concerns that offered free or inexpensive materials usable for instructional purposes. The ease with which these materials could be obtained by the secretary seemed to produce an automatic increase in their use by teachers who formerly did not find time to complete the small amount of extra work needed to bring these things into their classrooms.

When manufactured or published materials were not easily available, teachers used the secretary to help them construct items of their own design. Here the important thing seemed to be the availability of the proper instrument at precisely the right time. It might be argued that many of the materials produced in this way could have been purchased in collections commercially available at a lower cost; however, the published collections carry with them these disadvantages: (1) they tend to increase the cost of education for the pupil, (2) the teacher often feels that he must use most of the material in the collection or be guilty of wasting the money spent, and (3) the professional writer of such materials can never anticipate all of the specific problems that may confront each teacher.

The quality of teacher-designed material varied, of course, with the professional skill and ingenuity of each teacher; but in any case, these instruments possessed the special virtues of specific applicability and timeliness.

Individualization of Instructional Procedures

Instructional provision for individual differences is contingent on the availability of two resources—time and appropriate learning materials. Secretarial service to teachers may be used to expand the availability of both of these necessities. The increase in time available for use with individual pupils is made possible through the assumption of routine duties by the secretary and through group procedures that feature the use of more independent study by pupils. Carefully prepared study guides made it possible for groups of pupils to proceed with some educational activity on their own, while the teacher used this time for individual instruction.

The ease with which specifically designed materials may be prepared for instructional use by a secretary lends itself to a diagnosis-prescription approach to individual learning problems. Teachers who are very sensitive to individual learning problems and who know many ways of dealing with such problems are likely to need large amounts of secretarial assistance.

Planning for Instruction

Thirty per cent of all the time saved for teachers by the activities of instructional secretaries was reassigned to planning for instruction. This fact is amply supported by statements of teachers and the observations of principals. When secretarial help is made available, teachers do make plans that are more detailed and include in these plans longer units of time.

The results of this kind of planning are evident in the teaching described in the case studies. One of the obvious determinants of quality in any kind of teaching is the amount of time available for reflection about, and organization of, the processes and content to which the learner will be exposed. By making time available for teachers to use in planning, instructional secretaries have a direct effect upon the quality of instruction.

The Relationship of Secretarial Help to Specific Educational Processes

Certain kinds of teaching activity are particularly amenable to improvement through the support furnished teachers by instructional secretaries. Among these activities, testing and evaluation practices may be improved in three ways. *First*, since tests may be more easily prepared, teachers are able to provide a better pattern of examination, using a greater number of tests spaced at effective intervals. *Second*, with secretarial help available, the results of testing can be made available to pupils rapidly. *Finally*, the assistance rendered by secretaries through their collection and compilation of scores, production of listings and distribution of scores, and conversion of scores into standard units of measurement makes possible a more precise interpretation of test data by the teacher.

Any time a teacher turns his attention to a small group within a larger class, the pupils not included in the small group must of necessity engage in independent work. The extent to which pupils are able to continue work on a previously assigned task without additional help from the teacher represents the effective limit of time the teacher may spend with the smaller group. If the teacher is able to contrive written directions in which major problems and questions have been anticipated, independent study is thereby greatly facilitated; and, correspondingly, group instruction will encounter a minimum of interruption. Such materials require much time for preparation, are usually improved through empirical test and revision, and their collection into a professional library

represents one of the indices of a teacher's professional growth. It is at this point that the professional competence of the instructional secretary gives direct support to professional needs of the teacher. In view of the general lack of skill in typing indicated by teachers participating in the project, the accumulation of materials necessary to efficient small group teaching would have been painfully slow prior to the introduction of secretarial assistance.

Teachers in the program who have chosen to enlist the help of parents in the education of their pupils have produced, with the help of the secretary, specific directions for parental use with respect to home study. Furthermore, these general directions have often been supplemented by duplicated homework assignments containing specific instructions for the completion of certain educational activities. In at least one instance, a teacher required periodic reports from parents relative to the performance of homework assignments. Such procedures as these rely heavily on the availability of secretarial help.

Good communications are essential to the proper use of community resources. Whether the project involves bringing the resources into the classroom or taking the class to the site of the resource, proper arrangements are basic to a successful experience. Arrangements for educational experiences in connection with resources outside the school may be completely delegated to the instructional secretary. The teacher need only specify the things that need to be done, and the secretary will make appointments, arrange transportation, secure parental permission, and complete last minute reminders with no further assistance from the teacher.

SUMMARY OF FINDINGS RELATED TO SUBPROBLEMS

Evidence collected during the course of the study related to a series of subproblems is summarized below:

1. The basic equipment necessary for the maintenance of secretarial service in a school consists of one typewriter, one desk, and two drawers of filing space for each secretary. Duplicating equipment must be available in the school. Since many of the prepared materials are suitable for continued use, it would seem desirable to make mimeographing facilities available to the secretaries.

Expendable supplies in the form of duplicating paper, stencils, and duplicating fluid were used in this program at about four times the rate of consumption that existed prior to the inception of the program. Experience in this program indicates that special work rooms are not essential to the efficient functioning of instructional secretarial service. Any unused area reasonably free from traffic disruptions may be utilized.

2. The requirement that the principal have his own secretarial service before the help is made available to teachers seems to have been important in the operation of this project. Beyond this requirement no general statement is possible. Specific arrangements for the scheduling

of the secretaries' time and appointments for teacher-secretary conferences varied from school to school.

3. Some increase in the efficiency of the service was gained by supplying help to all the teachers in a school. If more than one secretary is needed to supply the service to teachers in an elementary school, a ratio of one secretary to seven teachers seems to be satisfactory. This study supplies no evidence of the optimum amount of secretarial help needed by classroom teachers.

4. The practices reported by teachers participating included many instances in which new methods and materials were being tested in the classroom. Secretarial service seemed to offer effective support for these endeavors.

5. Experiences with the use of instructional secretaries in Davidson County, Tennessee, indicate that the service can be made available in schools for approximately one third of the amount of the average salary paid to teachers for each secretary employed. This cost would include the expense of necessary equipment and increases in the amount of expendable supplies consumed.

CONCLUSIONS

On the basis of the evidence accumulated in the study, the following conclusions are advanced:

1. Teachers participating in this program have generally used the time saved for them for the improvement of their instructional program.

2. The provision of secretarial assistance to teachers has led, in this program, to the use of a greater variety and larger amounts of instructional materials.

3. Secretarial help has been used by teachers in this program for the creation of experiences, processes, and materials that result in a more adequate provision for individual differences in learning ability.

4. The provision of secretarial assistance has affected the methods of planning for instruction of 72 per cent of the teachers participating in this program.

5. The efficient conduct of programs of testing, small group instruction, independent study and practice, parental cooperation in the educational program, and the use of community resources are particularly related to the availability of secretarial assistance.

6. Without exception, teachers in this program felt that the instructional secretary provided them with needed help.

IMPLICATIONS FOR FURTHER STUDY AND ACTION

The following proposals are implied by the evidence presented in this study and seem worthy of further consideration and action:

1. School administrators responsible for the organization of teaching staffs should investigate with care the possibilities for the implementation

of secretarial help to teachers in the elementary schools under their supervision. The plan of providing secretarial assistance to teachers as outlined in the study is simple to install, relatively inexpensive to operate, and has resulted in immediate and important extensions of the teaching activities of participants.

2. Further study should be made of the results of employment of secretarial help for high-school teachers before any general use of this procedure is attempted. The present study shows that the service is helpful at the secondary-school level, but the effects on the instructional program have not been as marked.

3. A plan of helping teachers by providing secretarial service for them appears to be particularly desirable in situations where classrooms are heavily overloaded with pupils, and where no change in this condition is foreseen. This is an action that may be possible when basic remedies are not available. Supplying secretarial help to teachers does not change an unsatisfactory classroom environment, but it can help the teacher work more effectively within such restrictions.

4. The results obtained in this study¹ suggests the advisability of providing secretarial help to teachers who are engaged in programs of curriculum improvement. The problem of implementing curriculum change may be simplified when such assistance is available. Since most of the teachers involved in this program were able to effect considerable change in their teaching procedures and were able to restructure the use of their time as a result of the help given them by instructional secretaries, the availability of the service may provide needed support to programs organized for the improvement of instruction.

¹ Readers who desire more complete information on this study may obtain it by writing Dr. Bennie Carmichael, Coordinator, Peabody Research and Development Program, Box 13, George Peabody College for Teachers, Nashville 5, Tennessee.

**Plan for Increased Opportunities in Science Is
Continued at Alexander Ramsey High School,
Roseville, Minnesota**

CURTIS JOHNSON

LABORATORY assistants were used to increase opportunities for pupils at Alexander Ramsey High School, Roseville, Minnesota, for a third year. Alexander Ramsey is a high school of 1,470 students, located in a suburb of St. Paul.

OBJECTIVES

During the school years of 1956-57 and 1957-58, the faculty of our high school was able to carry on an experiment that was intended to utilize better the time of the teachers and at the same time increase the opportunities for our students. We found during those two years that some of our ideas for implementing the project were successful and others were not. Our original objectives were:

1. To provide additional laboratory experiences under the supervision of project assistants
2. To make maximum use of our science facilities by making them available after school, during an activity period, evenings, and Saturday mornings
3. To give equal opportunity for the gifted, the average, and the below average pupils to participate—participation to be voluntary
4. To have extra time available in the laboratories to supplement larger classes

PREVIOUS REPORT

In the BULLETIN of the National Association of Secondary-School Principals, January 1959, our report shows our evaluation for the first two years of the project. During the school year 1958-59, we have continued to carry on our program and to implement our recommendations of the previous report.

PROGRAM PARTICIPATION

The participation in extra laboratory work during the school year 1958-59 has been very good. Our students in grades 10-12 inclusive are required to take one year of science. To take care of the wide range in

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abilities, our curriculum includes applied biology (conservation), general biology, applied physics, general physics, applied chemistry, and general chemistry. About eighty percent of the students take one of the courses in biology. About fifty percent of the students take two years of science in grades 10-12. In 1959-60 there are 886 students of an enrollment of 1325 who are taking courses in science. The range in ability of students is taken care of fairly well in physics and chemistry by having the two general levels of instruction.

With our large enrollment in science, we provided *extra laboratory time* during the activity period (available 12:30-1:30 daily), Saturday mornings (9:00-11:30), and one evening, Tuesday, (7:30-9:30). The Tuesday evening for taxidermy was added during 1958-59 because of the large number who came on Saturday morning and over-taxed our laboratories at that time. The average number on Saturday morning was thirty-five with a high attendance of seventy-five and a low of seventeen. During the eight-week course in lapidary, the average attendance was eight with a high of twelve and a low of five. The average eight-week attendance in the taxidermy course was twelve with a high of twenty and a low of seven. All students working during this *extra time without credit* were working on projects that they later exhibited in our spring science fair.

SCIENCE FAIRS

In April, our local science fair was held with about 250 projects being exhibited by our senior high-school students. The projects ranged from "Metabolism Rates in Rats" to "Terrestrial Effects of Solar Flares." Students of a large range of ability have been participating, with the increase in ability and participation being greatest among the better students. The parent and student reception of this fair was excellent. The projects were judged by well-trained citizens in the community such as scientists from the University of Minnesota, college professors, and scientists from industry. Our local Junior Academy of Science sponsored the local fair and made presentations of prizes to the many winners before a large group of interested parents and other visitors. Thirty-six projects were entered in the regional science fair with fourteen winners. Then fourteen projects were entered in the State Science Fair with two winners. We had thirty-five entries in the Science Achievement Awards Competition. Of these, there were twenty-three honorable mentions and two winners.

COMMUNITY REACTION

Parents and teachers encourage these activities. Many projects are created out of ingeniously used odds and ends that were eventually exhibited with pride at the local fair. Many professional scientists were awed by the competence with which students had created their projects. These exhibits showed understanding of science principles and included many new features designed by the young student. Our *extra time* has provided the *extra opportunity* for enrichment.

PROGRAM ASSISTANTS

During this year 1958-59, the labs were supervised by regular science teachers during the school day activity period and during the Tuesday evening period. We hired two undergraduate students who worked two hours each school day in relieving the science teachers from other duties. On Saturday mornings, we employed Larry May, a scientist from Minnesota Mining, for two and one-half hours each Saturday. Robert Menard, an engineer for General Mills, volunteered his services and was here a number of Saturday mornings. In addition, we had a taxidermist here for eight Saturdays, an astronomer for eight Saturdays, and an expert in lapidary for six Saturdays. The structured work in the three listed areas was mainly for ninth- and tenth-grade students. The eleventh- and twelfth-grade students worked on original projects that were an outgrowth of their classroom work in a regular science course. Each Saturday morning one of our science teachers is here as a general supervisor. At the beginning of the year, we had our industrial arts shops open on Saturday mornings to increase opportunities in other areas, but the student response did not warrant the expenditure. The program in that department was discontinued with the exception of our electronics shop. Many projects originating in physics and chemistry were closely related to experiences and opportunities in the electronics shop.

FUTURE PLANS

There is an increased interest among parents and many of them are spending more time working with their son or daughter. The board of education has provided for a similar program for 1959-60. It is the general consensus of students, teachers, parents, and administration that the benefits are great and that it is a worth-while educational project. Students doing good work with visible results are good public relations people for schools.

Completing the Commission's Staff Utilization Studies

J. LLOYD TRUMP

ACTION taken by the Commission more than two years ago set September 1960 as the culminating date for the Commission program of stimulation and supervision of experimentation on the improvement of staff utilization and dissemination of information about the experiments, ideas, and proposals growing out of the experiences during the project.

The January 1958 and 1959 issues of the NASSP BULLETIN have described the history, purposes, and experimental studies of the Commission program. This four-year project had its genesis with the NASSP Curriculum Planning and Development Committee with full approval of the Executive Committee of the National Association of Secondary-School Principals. Substantial financial support has been provided by the Fund for the Advancement of Education and the Ford Foundation. These funds have been used by the Commission for grants to local schools to conduct and report experimentation, and by the Commission for its own expenses to meet and disseminate ideas, recommendations, and reports. Financial reports are, of course, available in the office of the Executive Secretary of NASSP.

The Commission is encouraged by the adoption in many places of ideas and practices growing out of the studies during the past three and one-half years. Team teaching, redeployment of student groups in relation to the purposes of instruction, employment of a variety of types of personnel as instruction assistants, and the use of technological aids to instruction have become increasingly widespread. No one knows how many schools in addition to the more than 100 involved one way or another in Commission projects are using these devices, but the number is certainly considerable. Schools that start on this program extend the studies in other departments and grade levels. Other schools follow the examples and make additional contributions of their own.

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The Commission believes that, by September 1960, it will have stimulated sufficient momentum of interest among teachers and administrators in junior and senior high schools in the United States that continued support of experimentation by the Commission itself is no longer necessary. Workers in local school systems will find many sources of financial support for experimentation among the foundations and the state and national government research programs. Moreover, some changes are sufficiently validated by evidence that further duplicated research is unnecessary. Schools can adopt changed procedures without outside financial assistance.

Evaluation has always been a major concern of the Commission. Schools engaged in projects have been encouraged to obtain consultant help from higher education institutions in evaluating in as comprehensive manner as possible the results of their experimental studies. At every meeting of the Commission, the subject of evaluation has been discussed at considerable length.

While the Commission has engaged in continuous evaluation of its efforts, a final evaluation will also need to be made at the conclusion of the project. The evaluation will cumulate in the publication of a final report. This report will take the form of a readable book approximately 150 pages in length. The subject matter in this book to be widely distributed will be largely free from cumbersome statistics. On the other hand, a mass of statistical data is available in the Director's Office. Much of these data will be assembled in a supplement to the report available to interested persons.

Members of the Commission in public statements at the national conventions of NASSP and in many state principals' conventions have invited participation in the studies and solicited comments and suggestions from interested principals. Similarly, as the Commission anticipates the conclusion of its studies in September 1960, an invitation is again extended to interested persons to write comments and suggestions.



Opportunities are provided for professionals to work with individual students. With schedule modification this biology teacher has a relationship with each student which is closer than usual, though sometimes the pupils are in large groups.—Jefferson County (Colorado) Public Schools



A paraprofessional helps a small number of pupils in English. While the rest of the class is in large or regular-sized sessions, these pupils are able to develop skills which they need.—Jefferson County (Colorado) Public Schools

The Book Column

Professional Books

Address and Proceeding. Washington 6, D. C.: National Education Association, 1201 Sixteenth Street, N. W. 1949. 464 pp. This is the addresses and proceedings of the 97th annual meeting of the NEA in St. Louis, June 28-July 3, 1959, and the minutes of the 38th Representative Assembly of the NEA, of the Board of Directors, the Executive Committee, and the Board of Trustees. In addition, it contains highlights of the dedication of the NEA Education Center. Also included are brief accounts of the thirty NEA departments. It also contains the charter, bylaws, rules, platform, officers, calendar of meetings, the headquarters staff, a list of the 5,095 members of the Representative Assembly, and an index.

BANDURA, ALBERT, and R. H. WALTERS. *Adolescent Aggression.* New York 10: The Ronald Press Company, 15 East 26th Street. 1959. 487 pp. \$7.50. This volume is primarily designed to identify the child-training factors and family interrelationships that lead to the development of anti-social, aggressive behavior in adolescent boys. It also represents an application of the theoretical framework and methodology used by Robert R. Sears and his collaborators in studies of nursery-school children to aggressive behavior in older subjects.

While the problem of adolescent aggression has more often been approached from a socio-legal or psycho-analytic point of view, this study is based on data which were obtained from interviews and projective tests of two samplings of adolescent boys and their parents. One group of boys had histories of aggressive, anti-social behavior; the other group was selected as a normal control. Through its examination of anti-social disorders which constitute failure in socialization, this book contributes importantly to the understanding of the socialization, and lends needed insight into the basic understanding of the behavior and attitudes of adolescent boys. The book is based on an actual study of adolescent boys and their parents. It presents the application of developmental psychology to the understanding of anti-social behavior, and includes control families in which the boy manifests no behavior disorder.

CHERONIS, N. D.; J. B. PARSONS; and C. E. RONNEBERG. *The Study of the Physical World.* Boston 7: Houghton Mifflin Co., 2 Park Street. 1958. 694 pp. \$7.50. The third edition of this work, based on the general plan of the earlier editions, has been completely reorganized and rewritten. The main changes in organization are based on suggestions from the many teachers who have used the book over the last fifteen years, as well as the continued teaching experience of the authors. One of the principal changes is a reduction in the amount and kind of subject matter covered. A deliberate effort has been made to treat fewer topics more intensively so as to gain in depth without losing sight of the integrating links between the physical sciences.

As in the previous editions, judicious use has been made of chapter summaries, study exercises, and suggestions for further reading. It is felt that the special effort made by teachers to motivate students toward assignments which involve reading from original sources aids in extending the development of students' mental horizons should be encouraged. With this in mind, some suggested readings from original sources have been included. Another feature new to this edition is the listing of a number of paperbound books in the sciences. These are all titles of real merit and are readily available.

CHURCH, H. H., and M. S. LEWIS. *An Appraisal of the School Surveys Conducted by the School of Education, Indiana University*. Indianapolis, Indiana: Division of Research and Field Services, Indiana University. 1959. 76 pp. \$1. The purpose of this study is to appraise the school surveys conducted by the survey staff of the School of Education, Indiana University, from 1950 to 1958. The results of the appraisal should prove the worth of school surveys to succeeding boards of education and should point out to school survey staffs ways to improve school surveys.

DOWNIE, N. M., and R. W. HEATH. *Basic Statistical Methods*. New York 16: Harper and Brothers, 49 East 33rd Street. 1959. 304 pp. \$4.50. Because of the limited background and interest in mathematics of the typical student in the social sciences, no attempt has been made to derive the formulas or to impress the student with interesting mathematics underlying statistical theory. The authors have tried to present only enough theory so that the proper statistics can be chosen, computed correctly, and interpreted soundly. They have tried to do this briefly and clearly.

The book is made up of three parts. The first nine chapters deal with descriptive statistics. The next six cover inferential statistics and the commonly encountered tests of significance. The last three chapters cover three topics not usually presented in the first course in statistics. These are (a) various correlation techniques, (b) test construction and theory (reliability, validity, and item analysis techniques), and (c) the more commonly used nonparametric techniques. Since the assumption of a normal distribution is so infrequently met in the social sciences, every student who studies elementary statistics should be aware of the possible use of these distribution-free statistics.

ERNEST, J. W., and G. M. DaVALL. *Salesmanship Fundamentals*. New York 36: Gregg Publishing Division, McGraw-Hill Book Company, Inc., 330 West 42nd Street. 1959. 416 pp. \$4.16. In the revision of this text, the authors have reorganized chapters on a more teachable basis; included summaries at the end of each chapter to review and highlight important points; selected a wide variety of new photographs to illustrate numerous sales opportunities and techniques; and included quotations from prominent businessmen to make the student aware of the important role of salesmanship in our modern society.

The book is divided into five major parts dealing with: (1) the definition of selling and its role in distribution and production; (2) a review of basic knowledge and personality requirements; (3) the various methods and techniques involved in making a sale; (4) the kinds of sales problems which the salesman encounters and ways to solve them; and (5) a step-by-step program for getting and succeeding in a selling position.

Throughout this book, strong emphasis has been placed on good human relations. The value and worth of character traits such as honesty, consideration, and tact are stated and illustrated. Again and again the text points out that the modern salesperson must put the needs and wants of his customers first, making a sale sound. These and other principles which bring about sound relationships between customer and salesperson are stressed and demonstrated fully.

FRANK, L. K. *The School as Agent for Cultural Renewal*. Cambridge, Mass.: Harvard University Press. 1959. 61 pp. \$1.50. This, the fourth in the Burton lecture series, discusses what to him gives rise to the need for cultural renewal, how the school might function, recognizing the initial task of preparing teachers and new materials and methods for the new programs.

FRANK, L. K. and MARY. *Your Adolescent at Home and in School*. New York 22: The New American Library of World Literature, Inc., 501 Madison Avenue. 1959. 288 pp. 50c. The Franks discuss such vital subjects as diet, dates, health, etiquette, education, jobs after school, and allowances, as well as the emotional problems of depressions, tensions, crushes and puppy love, sibling rivalries and jealousies, mother-daughter conflicts, and rebellion against parental authority. Offering no general panacea, they basically recommend an unrelenting effort to solve difficulties through mutual understanding, continual study and work.

GALANTER, EUGENE, editor. *Automatic Teaching: The State of the Art*. New York 16: John Wiley and Sons, Inc., 440 Fourth Avenue. 1959. 198 pp. \$3.25. This book is the first major effort to record and evaluate the methods associated with the newly developed field of machine teaching. Many techniques are described and critically reviewed according to their expected role in American education. The book is based on a collection of 16 papers presented at a Symposium held at The University of Pennsylvania under the auspices of the U.S. Air Force. The papers deal with various aspects of machine teaching that include: programming, analysis, machine design, experimental results, and criticism.

HANDLIN, OSCAR. *John Dewey's Challenge to Education*. New York 16: Harper and Brothers, 49 East 33rd Street. 1959. 59 pp. \$2.50. A Pulitzer Prize winning historian analyzes the American school and its cultural context at the beginning of John Dewey's career. He focuses on a significant moment in American educational history and points out that around the turn of the century our country needed to be aroused by the kind of stir and excitement created by the new ideas of John Dewey. Dr. Handlin maintains that Dewey was and is misunderstood, but he was an explosive force at a time when American education had gone stale.

KAHN, GERALD. *Current Expenditures Per Pupil in Public School Systems: Urban School Systems, 1957-58*. Washington 25, D. C. Superintendent of Documents. 1959. 77 pp. 45c. This publication presents detailed data on current expenditures per pupil for individual urban school systems. Of the 502 school systems canvassed, 484 reported, a response rate of 96.4 per cent. All of the 91 school systems covering areas of 100,000 population or more responded.

During the school year 1957-58, the median annual current expenditure per pupil in average daily attendance came to \$344 for urban school systems with 100,000 population or more (Group I), \$311 for systems with 25,000-99,999 population (Group II), \$292 for systems with 10,000-24,999 population (Group III), and \$303 for systems with 2,500-9,999 population (Group IV). The comparable expenditures in average daily membership were: Group I, \$320; Group II, \$292; Group III, \$274; and Group IV, \$284. (The population groupings are based on data from the most recent Federal census, 1950.)

Among the regions, per pupil expenditures were highest in the North Atlantic States (\$355 in A.D.A., and \$326 in A.D.M.), and lowest in the Southeast (\$202 in A.D.A. and \$187 in A.D.M.).

Median current expenditures per pupil (in constant dollars, based on the Consumer Price Index) increased over the previous year in each population group by the following proportions: Group I, +4.8 per cent; Group II, +2.5 per cent; Group III, +2.3 per cent; Group IV, +4.2 per cent.

From 1952-53 to 1957-58, median current expenditures increased in each of 5 major accounts analyzed. However, the rates of increase varied considerably. The greatest increases were in the *fixed charges* account, and the smallest in the *administration* account.

LEEDER, J. A., and W. S. HAYNIE. *Music Education in the High School*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1959. 384 pp. \$5.25. This book is a completely modern work on high-school music. Encyclopedic in scope and coverage, it ranges the whole field of music instruction in secondary schools, beginning with some new techniques that are proving successful in handling behavior problems resulting from adolescent adjustment mechanisms; how you can give the music environment a special attraction that will stimulate and hold student interest. It tells how to deal with the variety of tastes, intelligence, and experiences high-school students bring to their music classes; how to conduct "general classes" to meet the needs, interest, and abilities of all. Attention is given to voice testing and classification; the three ranges of voice changing; seven rules for selecting song material for general music classes; how to organize and train choirs, glee clubs, madrigal singers, and other vocal groups; rehearsal techniques that create and sustain interest; and the eight criteria for selecting choral music. It gives valuable information on the beginning orchestra, the intermediate orchestra, the concert band, the marching band, importance of musicianship over showmanship, the string trio and quartet, dance band, small wind ensembles, and rehearsal and performance problems in instrumental music.

The Music Teacher and Public Relations. Washington 6, D. C.: Music Educators National Conference, 1201 Sixteenth Street, N. W. 1958. 48 pp. \$1. This report has been prepared for the Music in American Life Commission on Music in School Administration by the Committee on Public Relations in Music Education of which Edward J. Hermann was chairman. The theme of the booklet is improving public relations in music education with the primary focus on the music teacher in the classroom. The booklet analyzes some of the problems encountered and suggest specific techniques for improving public relations. It also considers the different "publics" with whom the music person comes in contact and suggests techniques for use within

the school and with the broader community. It contains an introduction, three chapters—"Public Relations with Whom?" "Improving Relations in the School," and "Improving Relations in the Community"—a conclusion, a bibliography, and an appendix.

NICE, RICHARD. *A Handbook of Abnormal Psychology*. New York 16: Philosophical Library, Inc. 15 East 40th Street. 1959. 255 pp. \$6. This is a survey of the various manifestations of abnormal behavior patterns, together with a detailed interpretation of the available therapeutic measures. Case histories are given which represent the most common forms of mental diseases, with particular attention to the psychological relationship between delinquency, drug addiction and the sexual offender. A glossary of psychological and psychiatric terminology, as used by the different schools, is included.

SCHULTZ, R. E. *Student Teaching in the Secondary Schools: A Guide to Effective Practice*. New York 17: Harcourt, Brace and Co., 750 Third Avenue. 1959. 414 pp. \$5. The aim of this book is to guide the student teacher along professional lines from his first day of teaching. In Part One, "The Effective Student Teacher," those problems are dealt with that concern the student teacher most in his first weeks of teaching. Part Two, "The Professional Teacher," is written with a wider perspective since it looks toward the teacher's transformation from an apprentice to a full-fledged member of the teaching profession.

The first chapter in Part One explores the reasons why the student teacher should learn all he can about his assigned school, its pupils, and the community, and suggests sources from which this information can be obtained. Chapter 2 uses sample teaching plans as the basis for analyzing how unit plans and lesson plans are put together. Chapter 3 illustrates how five basic teaching techniques can be effectively handled in various subject fields and which of these techniques are best suited to which teaching situations. The remainder of the chapter discusses the techniques of questioning and review. Chapter 4 focuses on the characteristics of the gifted pupil, the slow learner, and the retarded pupil, and describes how to adapt teaching techniques to meet the needs of these three types of pupils, whether they are taught in regular or specially grouped classes. The last section deals with the educational needs of the handicapped. Chapter 5 explores the concept of discipline, investigates the causes of classroom disturbances, and points out the advantages and limitations of various types of corrective measures.

Chapter 6, which begins Part Two, describes how achievement can be measured and appraised and how to grade and report on the pupils' progress. In Chapter 7, the importance of each kind of teaching aid—maps, field trips, TV, etc.—is critically appraised. The chapter includes lists of places where these aids can be located and describes how a card file can be kept on them. Such a wealth of sources for teaching aids is included that the student teacher may want to keep this as a reference book after he has begun to teach.

In Chapter 8, the student teacher is asked to reflect on what he has learned about himself in his student teaching and to compare his personality traits with those that most effective teachers have. In this way he can discover where improvement should be made. Chapter 9 takes him to the threshold of his first job by outlining the procedures to follow in securing his first full-time teaching position.

SCOTT, C. W.; C. M. HILL; and H. W. BURNS, editors. *The Great Debate: Our Schools in Crisis*. New York 11: Prentice-Hall, Inc., 70 Fifth Avenue. 1959. 192 pp. \$1.95. Throughout the length and breadth of our land, public education is being debated today as never before. Most of the discussion has to do with fundamental issues and some of it is well reasoned and pointed. A considerable portion is much more emotionally charged than it is reflective. All of what is being said and written seems to indicate that our schools are indeed in a period of crisis.

The gravity of the situation cannot be overestimated. If we fail to educate the present and immediate future generations appropriately and well, we may lose the current conflict with the Soviet powers and cease to be free to educate and live as we see fit. This is the grim prospect before us.

In the final analysis, laymen more than educators will determine the educational issues that now confront us. This collection of criticisms of public education and related materials has been prepared to help them see both sides of questions and to stimulate them to think before they act. It provides only a sample of the debate that rages about us, yet this is adequate for the reader to understand the general nature of the whole and to sense the urgency of the problem.

This book differs from a previous one edited by Scott and Hill (*Public Education Under Criticism*, Prentice-Hall, 1954) in that it relies more heavily on material from popular magazines, is much shorter, and concentrates pretty much on specific criticisms and responses thereto. The previous book, after presenting both criticisms and defenses, gave considerable attention to the analysis of criticisms and to proposals for handling them.

SHARTLE, C. L. *Occupational Information: Its Development and Application*, 3rd edition. New York 11: Prentice-Hall, Inc., 70 Fifth Avenue. 1959. 400 pp. \$8.65. In this edition the book has been rearranged. After the introduction to the uses and need for occupational information, the reader is given an over-all picture of the world at work and its social values. Following this general picture, the more specific topics are discussed. Much new information has been added including occupational values, prestige ratings of industries, and the main divisions of the new (and first) International Standard Occupational Classification of Occupations. There is also a new chapter on occupational requirements. The book retains its original orientation for the professional user of occupational information, and emphasizes the need for realism on the part of the user by visiting establishments and obtaining information firsthand.

STICKNEY, RUFUS; B. G. STICKNEY; KATHLEEN FLOOD; H. J. HORTON; and H. S. WEIL. *Office and Secretarial Training*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1959. 320 pp. \$3.60. This fourth edition covers the entire field in a realistic and practical manner. The student works in an office, attending to the many details of a busy organization. The adequate background material presented is followed by appropriate "Office Activities" designed to familiarize the student with modern secretarial procedures.

This text stresses personality training, which is the first essential for success in any office position. Self-evaluation of 49 specific success traits indicates needed improvement. A *Personality Profile*, similar to those now used by large

businesses, is included in the workbook, *Forms and Tests*. Throughout the course, the *Personality Profile* helps the student to develop an excellent personality for business and social relationships.

Another important feature of the book is the cumulative nature of the Office Activities. In natural sequence, the secretary engages in typical daily routines. Particular duties are not confined within units; there is a repetition of such duties as meeting callers, taking dictation, handling mail, using the telephone, preparing checks, and so on.

In Unit 1, the student applies for the position of secretary to Mr. Peter B. Ennis, of Ennis, Cole and Withington. He then begins work immediately. Each unit's Office Activities represent what might be an actual day's work in an office.

Dramatization is used freely. Instructions are worded so that the executives address their remarks directly to the secretary, who completes each job with a high standard of efficiency and presents it to the proper executive for approval. The instructor represents the office manager and the various executives and occasionally interrupts the work of the secretary to dictate correlated material from the *Teacher's Manual*. Students are given an opportunity to use their judgment in disposing of the most important tasks first and to exercise initiative when the occasion arises.

SWANSON, G. I., editor. *Vocational Education for Rural America*. Washington 6, D. C.: National Education Association, 1201 Sixteenth Street, N. W. 1959. 366 pp. \$4. This 1958-59 yearbook of the Department of Rural Education begins with a glimpse of the environment in which vocational education is offered in American society. Later chapters present the opportunities which this environment offers. All of this discussion can be couched in the unifying theme that describes the problems of rural education—the maldistribution of human, economic, and educational resources. Some parts of the Yearbook are purely descriptive, some are coldly analytical, and some may be controversial. Ideally, perhaps, a yearbook should be all of these, thus providing a reservoir of information to the reader and at the same time gently urging him to choose among ideas and alternative solutions to problems. It also contains a directory of membership.

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To appreciate the scope of the book, it is necessary to understand that the character and administration of the public schools have been substantially effected by three important and far-reaching trends: *first*, the shift from school administration as management to emphasis on process and shared leadership; *second*, the consolidation of numerous small school districts into fewer, more centralized, and larger school districts; and *third*, the change from a public-

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relations orientation to the more inclusive concept of school-community relations as a bidirectional process.

This book concerns itself in a creative way with all three of these trends. It does so by defining an operational theory of school improvement which comes to grips with the basic issues inherent in these trends, tests the theory in an intensive and far-reaching experiment, and, finally, distills from the experience guides which the authors consider valuable for those concerned with school improvement processes. It involves the entire public school staff and literally thousands of lay citizens in a large county school district. In essence, it is a story of schools and communities as they work together for school-community improvement. It emphasizes the more complex *process* of school improvement—according to the authors, very probably the emphasis of the future in preparation programs for administrators.

WINN, R. B., editor. *Dictionary of Education*. New York 16: Philosophical Library, Inc., 15 East 40th Street. 1959. 160 pp. \$3.75. Dewey is a master of the pithy saying, of compressed incisive thought. These apothegms are too full of suggestion and wisdom to be left buried in the discursive pages in which they are embedded. Dr. Winn has had the brilliant idea to select many of the best and let them stand on their own feet. And his success reveals how well Dewey lends himself to such a culling. The Dewey who punctuates his reasoned arguments with these effective sayings is not the whole Dewey, of course. The serious reader will want to go on to explore the longer passages of analysis of which these concentrated statements are the climax, and, to use Dewey's own term, the "consummation." But the skill of Dr. Winn does make clear that John Dewey can rank with the best of those whose wisdom has produced the literature of "philosophical thoughts."

WOOD, H. B. *Foundations of Curriculum Planning and Development*. Seattle 16, Washington: Cascade-Pacific Books, 5448 Forty-seventh Ave., S. W. 1960. 542 pp. This book approaches the curriculum on a 12-year basis, in spite of the tendency in many teacher training institutions to approach it as either an elementary-school curriculum or a secondary-school curriculum. The author believes that the elementary teacher should be generally familiar with the secondary curriculum, too; he believes the secondary teacher should likewise be generally familiar with the elementary curriculum and all experience areas of the secondary school as well as his special area. Therefore, the book is designed to bring about greater integration between various levels and areas of the curriculum. It combines the general basic curriculum principles, and the practical application of them by experience areas, in one book. It combines curriculum planning with methodology. The author believes these to be inseparable in the practical situation, so fuses them in his presentation.

The book is offered to several audiences: (a) campus classes of both experienced teachers and inexperienced students, (b) school faculties engaged in curriculum study and improvement, whether organized for the purpose formally, or approaching their problems informally, and (c) extension classes whether composed of teachers and administrators from a single school system or from several schools. The book is extensively and pertinently illustrated.

World-Wide Graduate Award Directories. Brooklyn 22: The Advancement and Placement Institute, Box 99, Station G. 1959. 56 pp. \$3. Volume III of this series is the largest and most comprehensive compilation of fellow-

ships, assistantships, prizes, scholarships, work-study plans for students and professional people. More than 350 universities and foundations from almost every state and over 100 foreign universities have sent information to be listed in this new volume. Each year a completely new directory is issued by the Advancement and Placement Institute. The Institute is a non-commercial service founded in 1952 to provide a world-wide professional clearing house for educators and librarians through publications. These give information about positions, recruitment, summer positions, exchange opportunities, and graduate and undergraduate study. Other publications issued by the Institute are the *Monthly Crusade Journal* and the *Annual World-Wide Summer Placement Directory*.

Each listing includes the amount of the stipends which range from \$200 up to \$10,000, the field of study, the candidates' prerequisites, and the method of application. Awards cover all fields of educational endeavor from research in tropical medicine in El Salvador to highway engineering in Georgia; from research in microbiology at Stanford University to wildlife conservation at the University of Maine; from the teaching of reading in the elementary schools to educational administration. Among the awards are many that have gone begging in former years because qualified applicants didn't know about them. Volume III presents completely new and additional data from Volume II which was published in 1958 and Volume I which was published in 1957. Volumes I and II are available at \$3 each.

Books for Pupil-Teacher Use

ADAMSON, H. C. *Admiral Thunderbolt*. Philadelphia 39: Chilton Company—Book Division. 56th and Chestnut St. 1959. 350 pp. \$5.95. By the time he was in his mid-twenties, Captain Peter Wessel was the hardest-hitting opponent of Charles (Carl) XII of Sweden in the ten-year Baltic War of the early 18th century. This is the true story of his meteoric rise to fame in eight short years, his spectacularly successful sea battles as Captain, first of a small man-o'-war, then of the fast frigates and mighty ships of the line of the Danish-Norwegian navy.

ARCHIBALD, JOE. *Falcon to the Fight*. Philadelphia 2, Pa.: Macrae Smith Co., 225 S. 15th St. 1959. 192 pp. \$2.95. The new United States Air Force Academy, set in the shadow of the Rampart Range in Colorado, is the scene of this story of two cadets on the Falcon football squad who have a lot to learn about traditions and what they mean.

Jim has been fed a steady diet of Air Force and its traditions by his father, a major, ever since he was a kid. Now Jim wonders if the Air Force is what he really wants or is it something he was pushed into by his father. Al Kim, new to the tradition of the Air Force, can't help feeling that the Academy is too new—certainly too new to beat Army with its ancient and honorable history. A fight with the cadet colonel, a letter to the Honor Committee of the Academy, and the West Point game are just some of the things that help Jim and Al to understand the opportunities of the Air Academy and provide the reader with a fine sports story.

BAUGHMAN, M. D. *Teacher's Treasury of Stories for Every Occasion*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1958. 495 pp. \$3.75.

Here is a marvelously complete treasury of stories to use when you talk to parent groups, at conferences, commencements, conventions, community meetings—and of course, when you want to put over a point or ease the tension in a class. It's a great collection of more than 2,000 indexed anecdotes, epigrams, quotations, quips, and humorous verses, as well as more serious thought-starters. In all, a big and enjoyable book that adds spice and color to any speaking occasion. The author believes that "teachers must inspire as well as instruct." He adds, that the day-by-day work of an inspirational teacher is like an underground stream of water which flows quietly along unobserved, but which makes green everything growing above it.

BERGAUST, ERIK. *Rockets of the Navy*. New York 16: G. P. Putnam's Sons, 210 Madison Ave. 1959. 48 pp. \$2.50. This is a roundup of photographs of all the principal rockets and missiles in use by the United States Navy. Captions accompanying the more than fifty up-to-the minute photographs in this book give the important specifications of each rocket and missile. This interesting picture collection is further supplemented by a straightforward text which describes briefly the development, history, and present use of the startling space age weapons the Navy now uses for defense. From the slender Sidewinder antiaircraft weapon to the powerful Polaris intermediate-range ballistic missile, the author has provided a fascinating book for rocket fans young and old.

BERGAUST, ERIK. *Satellites and Space Probes*. New York 16: G. P. Putnam's Sons. 210 Madison Ave. 1959. 48 pp. \$2.50. This book contains photographs of the famous Russian Sputniks and Lunik and such U.S. satellites and satellite carriers as our Explorers, Vanguard, Pioneers, Discoverers, and Juno II. Along with each photograph is a concise caption giving the size, weight, and instrumentation of the satellite and a description of the launching rocket. The author briefly outlines the space exploration programs of the United States and Russia, explaining the function of the agencies which guide them. He gives a clear, easily read analysis of the results of these exploration programs and then closes the book with a summary of what is known about future exploration plans, including Project Mercury, a program which will eventually send aloft a manned space vehicle.

BETHERS, RAY. *Islands of Adventure*. New York 22: Hastings House, Publishers, Inc. 151 E. 50th Street. 1959. 48 pp. \$2.95. There are many more adventurous places you will find out about in this book—a memorable voyage based on Ray Bethers' own extensive travels, as well as his ability to retell many historic and exciting stories in a new way.

BLUM, DANIEL. *A Pictorial History of Television*. Philadelphia 39, Pa.: Chilton Company—Book Division, 56th and Chestnut Street. 1959. 288 pp. (9" x 12"). \$10. The first pictorial record of the wonderful world of television from its inception to Mary Martin's astounding double triumph on Easter Sunday, 1959. In thousands of exhilarating and nostalgic photographs, it recreates the famous TV firsts: Milton Berle as Mr. Television; baseball's Brooklyn Dodgers vs. the Cincinnati Reds at Ebbett's Field; scene from Broadway's *Susan and God* with Gertrude Lawrence; the 1940 Republican National Convention in Philadelphia; Truman's 1949 inauguration; the Louis-Conn World's Heavyweight boxing championship match at Yankee Stadium, and hundreds of other highlights of the TV world since.

BREDOW, MIRIAM. *Handbook for the Medical Secretary*. New York 36: Gregg Publishing Division, McGraw-Hill Book Company, Inc., 330 West 42nd Street. 1959. 384 pp. \$4.75. More than a hundred colleges and business schools across the country are training medical secretaries. In addition, many a graduate from business school will enter a doctor's office with no previous medical secretarial training. The present book, therefore, has a threefold purpose: to serve as a textbook for the student who is taking a medical secretarial course; to help the business secretary who is new in the field and who is learning her duties on the job; and to serve as a permanent reference book for the medical secretary.

Medicine does not stand still. It constantly enlarges the scope of its activities and encompasses new areas. Specialties spring up and the older branches of medical practice are subdivided into yet more specialties, as new fields grow and expand. Scientific discoveries are constantly being made and applied to medicine. This book keeps pace with new developments. For example, tranquilizers have revolutionized the treatment of mental disorders; other drugs have brought about a change in the treatment of hypertension. Since the medical secretary will come across the names of drugs used in medical practice, a new section on pharmacology has been added to the glossary. Also available is a "Payroll Record Keeping" (24 pp. plus 12 record forms, \$1.50) to accompany the text.

BUYS, W. E.; JACK MURPHY; and BRUCE KENDALL. *Discussion and Debate*. Chicago 90: National Debate Research Company, Box 1161. 1957. 114 pp. \$3.75. This textbook deals with two important speech activities in which many high-school students will be participating during their high-school career, and perhaps in college as well. Some may enter only discussion events, while others will enter only debate tournaments. Most, however, will be doing both, and, although many may not enter interscholastic discussion, they will be using discussion as they prepare for debate. This book is designed to help them achieve as quickly and efficiently as possible the skills necessary for effective contest work. The book is composed of 12 chapters entitled: "Introduction to High-School Discussion and Debate," "Surveying the Problem," "Gathering and Organizing Information," "The Tools of Reasoning," "Evaluating Possible Solutions," "Techniques of Group Discussion," "The Rules and Language of Debate," "Building Affirmative Cases," "Building Negative Cases," "Presenting the Debate Cases," "Techniques of Refutation and Rebuttal," and "Ethics and Behavior in Discussion and Debate."

CHAPMAN, SYDNEY. *IGY: Year of Discovery*. Ann Arbor, Michigan: The University of Michigan Press. 1959. 112 pp. \$4.95. Here, in word and picture, is the story of man's first probe into space. Vanguard and Sputnik are only one side of the story—the International Geophysical Year is the first concerted international effort to advance our knowledge not only of space but also of the earth and sun. The author, leader of the team of scientists that directed the program, re-creates for the general reader the discoveries that will provide the basis for our exploration of space. He describes how scientists from 67 nations pooled their resources and techniques to explore our corner of the universe—with satellites and rockets, the voyage of the *Nautilus* under the polar ice cap, teams of amateur moonwatchers—and what their discoveries mean for our future.

CHENEY, L. J. *A History of the Western World*. New York 22: New American Library of World Literature, Inc., 501 Madison Avenue. 1959. 304 pp. 50c. A survey of Western civilization—politics, art, government, science, philosophy, and religion—from the Stone Age to the twentieth century.

CHRISTOPHER, MATT. *Shadow Over the Back Court*. New York 22: Franklin Watts, Inc., 575 Lexington Avenue. 1959. 124 pp. \$2.95. Jeff was crazy over basketball. He had a hard time in making the team, but enjoyed every minute of practicing and playing. Jeff's father was a research scientist and thought sports were a waste of time. Jeff didn't want to hurt his father's feelings but still wanted to play. How father and son worked out their problem is one of the themes of this book.

COLBY, C. B. *Mapping the World*. New York 16: Coward-McCann, Inc., 210 Madison Avenue. 1959. 48 pp. \$2. The current project of the Map Service of the U.S. Army Corps of Engineers is nothing less than mapping the world. Nearly fifty nations are working with the engineers, and to date about 25 per cent of the land areas of the world have been surveyed. Mapping the world is of course the most ambitious job the Map Service has undertaken, but the Army has been making maps since 1777 when General George Washington appointed the first official surveyor and map maker. Millions of maps of all types and scales have been turned out since then.

COLBY, C. B. *Our Space Age Jets*. New York 16: Coward-McCann, Inc., 210 Madison Avenue. 1959. 48 pp. \$2. This is a new and completely revised edition of *Our Fighting Jets*. Since that book first appeared in 1951, much has happened in aeronautical design and engineering. Here Mr. Colby presents a selection of outstanding planes embodying these advances in fighting aircraft design. Among the twenty-three aircraft described, you will find a few that were included in the original book but most of them are entirely new.

COLBY, C. B. *Plastic Magic, The Material of a Million Uses*. New York 16: Coward-McCann, Inc., 210 Madison Avenue. 1959. 48 pp. \$2. Boats and fishing rods can be made out of plastic. So can the bodies of sports cars, football helmets, toys, and telephones. So can clothing, chicken wire, and pipe that is as light as a garden hose. It's even possible to make parts for the human body out of plastic. Here in both text and photographs the author provides an informative introduction to this fascinating and highly complicated field. He describes some of the different kinds of plastics and their special uses, the ways plastics are made, and the constant research and testing of new forms and uses of the material.

COLBY, C. B. *Snow Surveyors, Defenders Against Flood and Drought*. New York 16: Coward-McCann, Inc., 210 Madison Avenue. 1959. 48 pp. \$2. High mountains, blizzards and vast snow fields are the natural element of the "snowflake men." Snow is their business, for these men carry out the little known but vitally important work of the U.S. Department of Agriculture's snow survey. The snowfall in the mountains of the West and Northwest determines the amount of water the West will have in the spring and summer months. By measuring the snow at regular intervals through the winter, the survey provides a comparatively accurate prediction of how much water there will be, whether too much or too little. On the basis of this information, flood and drought can be anticipated, and, by preparing ahead of

time, communities can save many lives and hundreds of thousands of dollars in property damage.

CONRAD, BARNABY. *San Francisco—A Profile with Pictures*. New York 22: The Viking Press, 625 Madison Avenue. 1959. 228 pp. (8" x 11"). \$8.50. The author writes of the past, the Gold Rush days, the earthquake and fire, the Vigilantes, the colorful personalities of still-remembered San Franciscans of earlier times. He writes of the present, the views, the fog, the bridges and ships and boats, Fisherman's Wharf and Chinatown, the hills, architecture, night life, restaurants, cable cars, the people of today going about the extremely pleasant business of being San Franciscans—daily and on Sunday.

Throughout are photographs, two hundred of them, with four in color, by a roster of photographic "greats" from Ansel Adams to Jerome Zerbe. These were chosen from among thousands, the criteria being their pictorial excellence and their coverage of every aspect of this photogenic city, the familiar and the rare. For San Franciscans, visitors, or go-there-someday dreamers, this big beautiful "profile with pictures" should be irresistible.

COLLIER, ERIC. *Three Against the Wilderness*. New York 10: E. P. Dutton and Company, 300 Park Ave. South. 1959. 349 pp. \$4.95. Collier, a young Englishman who first came to Canada in 1919, married a quarter-breed Indian girl; then with wife, small child, a wagon, and thirty dollars, he took off into the primitive wilderness of British Columbia where he had been granted sole trapping rights to 150,000 acres. There in a frighteningly remote area they built their home and almost single-handedly brought the barren wilderness back to life and, in the process, created a truly remarkable family relationship. Through years of high adventure, the Collier family fought the wilderness, learned to live with it, and, in the end, achieved an extraordinary victory.

COOK, F. S.; P. C. MORRISON; J. M. TRYTTEN; and L. J. WHALE. *Junior-High Typing*. New York 36: Gregg Publishing Division, McGraw-Hill Book Company, Inc., 330 West 42nd Street. 1959. 228 pp. (11" x 7¾"). \$3.20. So important to the objectives of the modern junior high school are the by-product language-arts values of a typing course that the course should have two general purposes: (1) to develop a useful skill in typewriting, of course; but also (2) to develop to the utmost all the language-arts growth possible.

Achieving both purposes requires a special book. The hand-me-down vocational high-school typing textbook will not accomplish the second purpose. What is required is a book written especially to achieve both purposes and to fit the interests of teenagers. Hence, this book provides planned daily lessons for a one-year course. The content may easily be adapted to shorter courses. The materials and lessons are designed to achieve four specific goals: skill, arrangement, language arts, and business information.

COOK, O. R. *Serilda's Star*. New York 18: Longmans, Green and Co., Inc., 119 West 40th Street. 1959. 176 pp. \$2.95. Here is a warm, deeply felt sense of family living. The parents' praise, when won, is full. What the book gives best is the simple acceptance of togetherness. They will raise Katie as their own. Serilda's prize money buys Katie's books. Joy for one

makes joy for all. It is no wonder then that when the long-awaited letter comes from Katie's mother, everyone's feelings may be shared by the reader.

DEADERICK, BARRON. *Campaign and Battle of America 1755-1865*. Boston 20: The Christopher Publishing House, 1140 Columbus Avenue. 1959. 290 pp. \$4. This is an outline of famous military operations in the history of this nation, beginning with General Edward Braddock's defeat on the Monongahela River in western Pennsylvania in July 1775, and ending with the surrender of General Robert E. Lee at Appomattox Courthouse, Virginia, in April 1865. It contains a concise account of more than a century of war, describing the important campaigns and turning points of each war. Included in this informative work are the French and Indian War. Written from a liberal and uncritical viewpoint, the author points out in each battle the factors conducive to victory or defeat, and analyzes each general's reasons for commanding as he did. The book also contains brief biographical sketches of prominent leaders of those conflicts, such as Sir Jeffrey Amherst, Montcalm, Wolfe, George Washington, Nathanael Greene, Andrew Jackson, Winfield Scott, Robert E. Lee, Ulysses S. Grant, Stonewall Jackson, and others who played significant roles in the early annals of America.

DICKINSON, L. J. *A Table in the Wilderness*. Grand Rapids 3, Michigan: Wm. B. Eerdmans Publishing Company, 255 Jefferson Avenue, S. E. 1959. 244 pp. \$3.50. This book is the human, heart-warming story of a pioneer family that moved from Vermont and settled in the raw Territory of Michigan in 1818. As it chronicles the history of the Lemm family, Miss Dickinson's novel is a vivid, realistic description of pioneer life and, more particularly, it is the unforgettable portrayal of courageous, iron-willed, indomitable Lucina Lemm who embodies the virtues that made the pioneers strong. Thrift, deep and obtrusive piety, tenacity of purpose, uncompromising and fearless acceptance of reality in all its goodness and harshness, faithfulness, loyalty, and a forgiving spirit are the elements that make the book universal in its picture of pioneer life and universal in its picture of man's subduing of nature, of himself, and of his efforts to live out his days in the full dignity of his being.

The story is told in a colloquial tone and captures to a remarkable degree the voice of the pioneer. Miss Dickinson has filled her story with authentic, homespun philosophy, unsophisticated and unschooled, but derived from native intelligence operating from life itself.

Directory of American Psychological Services 1960. Glendale, Ohio: American Board for Psychological Services, Inc. 1959. 224 pp. \$1.50. Contained here is a list of agencies and individuals who have been carefully examined and found to offer psychological services of excellent quality. It is a very small list, in comparison with the hundred of persons in the United States and Canada to whom people go for psychological help, advice, consultation, or treatment. However, it is a highly selective list in the sense that the persons and agencies included in it have met the highest standards of psychological knowledge and competence which have thus far been set.

DOUGLAS, M. S. *Alligator Crossing*. New York 36: The John Day Co., 62 West 45th Street. 1959. 192 pp. \$3.50. Here, in the mainland United States' southernmost finger, lies its only tropical park, marking the delta of the world's strangest river. For the Everglades is a river of water, saw grass,

and mangroves, eighty miles wide in places, forming the central wilderness of south Florida. Its hammocks and grassy flats shelter deer and bears, panthers and opossums, egrets, pelicans, and alligators.

ERICKSON, C. W. H. *Administering Audio Visual Services*. New York 11: The Macmillan Company, 60 Fifth Avenue. 1959. 497 pp. \$6.95. The primary focal point of this book is the organization of information for the efficient promotion of learning experiences for a fundamental course in the administration of audio-visual services. The book is directed toward graduate students, but the very nature of the purpose and arrangement of the content enhances its value as a handbook for school-building audio-visual program coordinators and as a guide for planning by school superintendents, principals, and curriculum specialists.

This book emphasizes solutions to unique local problems and challenges directors of audio-visual service programs to move at optimum speed in directions that will prove to be fruitful under close scrutiny and evaluation. This book does not provide a recipe, but it does present some basic points of view that should aid the prospective director in his preparation for creativity. Each chapter contains questions and references.

FELTER, E. K., and MARIE REYNOLDS. *Basic Clerical Practice*. New York 36: Gregg Publishing Division, McGraw-Hill Book Company, Inc., 330 West 42nd Street. 1959. 383 pp. \$4.48. This text is designed to meet the special needs of those nonsecretarial students who may have had only limited interest or success in other vocational business training. It supplies everything that these young people need to know in order to qualify for many fine career openings available to beginners in routine clerical work in business offices.

In the first week's work, the student assumes that he is being considered for an office job in the National Products Company. He goes through the process of being interviewed and tested, including testing in such clerical "musts" as handwriting, spelling, and arithmetic. The purpose of this chapter is to intrigue the student but, at the same time, to show him what he doesn't know about clerical work.

The content of the course in *Basic Clerical Practice* was selected with typical clerical employment standards in mind. A special effort has been made to provide a balanced treatment of all training elements—skills, information, and knowledges. The intensive treatment of filing that was a special feature of the first edition has been retained in order to equip the student with a marketable skill that is in constant demand. The information regarding clerical procedures and process reflects the latest practices in modern business offices. The knowledges cover the whole gamut of daily office activities to which a beginner might be assigned. The book concludes with valuable guidance on "Getting a Job" and achieving "Success on the Job." A workbook (174 pp. \$1.88) is available for the completion of projects that require blanks and forms. It also contains supplementary forms and study guides.

FITCH, JOHN, and W. F. NOLAN. *Adventure on Wheels*. New York 16: G. P. Putnam's Sons, 210 Madison Avenue. 1959. 284 pp. \$4.50. Here, in this story of one man's incredible adventure on wheels, is a decade of racing history in the making. The only U.S. driver ever chosen to become a member of the exclusive, brilliant Mercedes-Benz team (under the inspired

guidance of the legendary Alfred Newbauer), Fitch drove the winning SLR Mercedes in Ireland's rain-swept Tourist Trophy with Stirling Moss—and was co-driver with ill-fated Pierre Levegh in the 1955 contest at Le Mans, the scene of road racing's greatest tragedy when Levegh's car shot into the crowd, killing more than 80 spectators.

FORSEE, AYLESIA. *Frank Lloyd Wright, Rebel in Concrete*. Philadelphia 2, Pa.: Macrae Smith Co., 225 S. 15th Street. 1959. 182 pp. \$3.50. From 1893, when he set up a private practice as an architect, until his death in 1959, Frank Lloyd Wright designed everything: schools, churches, hotels, theaters, stores, museums, office buildings, and hundreds of houses. He was a pioneer user of glass, concrete, cantilever-core construction and his innovations included floor heating, picture windows, the elimination of attics and basements, and the substitution of carports for garages. With a combination of meticulous concern for his building materials and the imagination of a genius, Wright created some of the most striking buildings of our modern world and his influence can be seen in every ranch and split-level house in the country.

FOSTER, GENEVIEVE. *The World of Captain John Smith*. New York 17: Charles Scribner's Sons, 597 Fifth Ave. 1959. 416 pp. \$4.95. This book gives a vivid picture of the world just before and at the time of the colonization of America. In the first section of the book, John Smith is presented pictorially and in text, while the prominent personalities of his time hold the center of the stage. In the last section, the adventurous Captain steps forward and takes his rightful place in history as he helps to establish the Jamestown colony. This book is a story of the world. It is a part of history measured by the lifetime of Captain John Smith, a small courageous Englishman who was born in the days of Queen Elizabeth I and whose heart was "forever set on brave adventure."

GAMOW, GEORGE. *Biography of the Earth—Its Past, Present, and Future*. New York 22: The Viking Press, 625 Madison Avenue. 1959. 242 pp. \$4.95. In this fascinating life history of our planet, the author has organized his story as if it were the biography of a man. The date of birth is recorded; the early childhood (a tempestuous period) is traced; the great events of maturity—the triumphs and disasters of a "career"—are set down; the arrival of offspring is noted; the changes caused by passing years are described; and the inevitable final chapter is composed with gravity and respect.

Like many another biographer, the author based his account on the data available at the time of writing, only to find some of it contradicted by later research. The theories of the Earth's origin and age have undergone material changes since the first publication of the book. The revised edition embodies the currently accepted theories, which the author believes are "now here for good."

GEMMILL, HENRY, and BERNARD KILGORE, editors. *Do You Belong in Journalism?* New York 1: Appleton-Century-Crofts, Inc., 35 W. 32nd Street. 1959. 92 pp. \$3. Uncovering the truth is somewhat of a science to them. It is also an art, telling the world's tales. It is very much a way of life; the newspaperman, on the go, curious, facing new situations continually, would consider any other career dull.

Yet the newspaper business is not for everyone. How can a young person who is considering a career in this field get an idea of whether he—or she—would be fitted for news work and find it rewarding? How should he go about preparing himself for such a career, and how could he land his first job? Answers to such questions come best from those actively and successfully engaged in journalism today; so Mr. Kilgore and Mr. Gemmill wrote over a hundred leading newspaper editors across the country for the counsel they would give an interested young man or woman who came to interview them personally.

GINGER, RAY, editor. *The World of Science*. New York 17: Henry Holt and Company, Inc., 383 Madison Avenue. 1959. 115 pp. (8½" x 11"). \$3.95. This volume is intended to present many of the basic ideas of modern science to readers who have little knowledge of it and are aware only of its complexities. Visual aids, including transparencies known as Trans-Vision, are utilized wherever possible to bring the reader closer to the unseen worlds that are incredibly small, or incredibly large, or hidden deep within physical objects or within living things. The presentation in each article aims at explaining to nonscientists what the basic ideas about to be presented mean, how they were arrived at, and what their significance is. More than 100 photographs and drawings, several in full color, are included for the contribution that they make to this accompanying them, without glancing at the text of the articles, will learn a good deal about the subjects.

In this book the reader will learn such things as the principles behind the Periodic Table of Chemical Elements, and the chain of chemical reactions that might have resulted in the first living things on earth; the total number of stars in the universe, and what their characteristics are, and how this knowledge can be used to calculate the probabilities that we will find life on other planets as we venture into outer space; and how radio active elements that do not exist in nature are being created in particle accelerators.

GOVAN, C. N., and EMMY WEST. *Mystery at Plum Nelly*. New York 16: Sterling Publishing Co., 419 Fourth Avenue. 1959. 176 pp. \$2.50. When the Lookouts arrive in Plum Nelly for the annual hobby show, they think only a good time lies ahead of them. Jimmy has a painting on display at the show and Mrs. Garden is exhibiting a quilt. Little do the three boys and three girls suspect that the innocent mountain village holds mystery and excitement for them. The first hint of adventure appears when a valuable painting vanishes from the show. Add to this the strange shenanigans at the nearby government radar installation, plus the possibility of spies, and the result is the most intriguing and suspenseful adventure of the Lookouts to date.

HAMILTON, J. R. *Using Electricity on the Farm*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1959. 409 pp. \$5. This is a simplified reference and how-to-do-it guide for agriculture students, club workers, and farm people. It is built largely around practical ideas for using electricity to improve the farm, with instructions on how to plan and do each major job. The illustrations and simplified examples in the book make it easy to read and understand.

The text consists of six problem-units dealing with the following phases of farm electricity: (1) opportunities in using electricity to improve the farm; (2)

common everyday principles of electricity for the farm; (3) farmstead wiring; (4) electric motors for the farm; (5) water pumps and lighting for the farm; and (6) electric farming equipment. Some practical projects are suggested at the end of each problem-unit, and questions are listed at the end of each chapter to encourage more thorough reading. Also, "Additional Readings" are listed at the end of each chapter to help solve problems that are not fully covered in this book.

HARK, MILDRED, and NOEL McQUEEN. *A Home for Penny*. New York: Franklin Watts, Inc., 575 Lexington Avenue. 1959. 202 pp. \$2.95. A spirited, heart-warming story of a self-reliant little girl who faced her problems honestly and, with the help of her many friends, won over them.

HEAFFORD, PHILIP. *The Math Entertainer*. New York 11: Emerson Books, Inc., 251 West 19th Street. 1959. 176 pp. \$2.95. The subject matter ranges through mathematical history, symbols, circles, triangles, conic sections, units, measures, moneys, series, permutations, abbreviations, etc. Some of the posers will seem easy, others exasperate—but none are dull. When he is all through, the reader will have had a lot of fun—and is likely to have a better grasp of mathematics and mathematical reasoning. Answers and complete explanations are given for all problems.

HECHTLINGER, A., compiler. *Modern Science Dictionary*. New York 16: The Bobbs-Merrill Company, 468 Fourth Avenue. 1959. 784 pp. \$10. This book covers all the science subjects commonly taught in schools, including astronomy, biology, chemistry, geography, geology, and physics. In addition, it covers many special fields, such as aeronautics and electronics. Besides scientific and technical terms, the dictionary includes biographical data on the world's greatest scientists and inventors. Thus, it helps the user to associate noted men with their achievements. Many definitions are accompanied by meaningful drawings. These illustrations, like the wording of the definitions, are extremely simple and easy to understand.

HEIGES, P. M.; A. E. SCHNEIDER; and HARRY HUFFMAN. *General Record Keeping*. New York 36: Gregg Publishing Division, McGraw-Hill Book Company, Inc., 330 West 42nd Street. 1959. 379 pp. \$3.96. This fourth edition has as its primary purpose instruction in the business and record-keeping activities of consumers and businessmen. Particularly, these activities concern the keeping of buying and selling records, the handling of cash, the preparing of payrolls, the filing of tax returns, and the maintaining of budgets. Furthermore, a thorough grounding in the purposes of record keeping and the manner in which records and reports organize information to tell a story naturally lead to an introduction to double-entry bookkeeping, which is contained in the book. A full understanding of the text material of this book will enable anyone to keep the basic records necessary for the preparation of a simple profit and loss statement and a balance sheet, and to meet the record-keeping requirements of the income tax regulations for at least eighty per cent of the business establishments in the United States.

Some of the features of this new edition are: materials so presented that it can be used as a one-semester course or a full-year course; 71 learning units; new subject matter; emphasis on *why*; 273 exercises, arithmetic exercises correlated with each chapter; a wide range of materials for individual student needs; two practice sets, etc. Accompanying the text is a 284-page workbook

(\$2.20) with study guides, practice set forms, objective tests, and a teacher's manual and key.

HEINLEIN, R. A. *Starship Troopers*. New York 16: G. P. Putnam's Sons, 210 Madison Avenue. 1959. 309 pp. \$3.95. From the battle of Marathon to Korea's Porkchop Hill, a certain breed of men have come forth to shoulder the burdens and beliefs of their particular world. For the Mobile Infantryman (MI) of this hard-hitting story of combat 5,000 years in the future, the passage of time has not made the job any easier. In his transition from adolescent trainee to Mobile Infantryman, the hero comes to understand a great many things about himself, his society, juvenile delinquency, patriotism, and the price of being free. Here is action and adventure in a scientifically plausible world of tomorrow carefully woven together with clearheaded and provocative ideas which carry meaning for the world of anywhen.

HOLDEN, RAYMOND. *Secrets in the Dust*. New York 16: Dodd, Mead and Co., 432 Fourth Ave. 1959. 179 pp. \$2.75. The story of archeology is as exciting as any detective mystery tale. This book covers the dramatic archaeological finds, amazing cave paintings, the fabulous tombs of Egypt and Mesopotamia, proof of the romantic legend of King Minos and the Minotaur. It tells of lost civilizations of Central America, the accidental unearthing of prehistoric tools in the American Southwest, and the "city of ivory eyes" uncovered in Alaska. The author's narrative captures the drama of this fascinating science—the thrill of discovery experienced by Champollion, Schliemann, Herbert Winlock, Austen Layard, Hiram Bingham, and others. Here is the story of man's curiosity about his past, how he has dug into long-lost centuries to piece together history that cannot be found in written records.

HOLMES, J. A. *Personality and Spelling Ability*. Berkeley 4, California: University of California Press. 1959. 86 pp. \$2. Research on the nature of spelling ability and its possible relation to personality factors has been fragmentary and inconclusive. Investigators have suggested the existence of such a relationship, but have been none too certain concerning its character or its extent. In this study, the author reports a study of the relationship in question. Using more than 1,500 university juniors and seniors in a series of samples, he administered two tests of spelling ability and, initially, three well-known personality inventories of the self-analysis type. By a method of successive sample analyses, the total of 1,018 items in the personality inventories was winnowed down to those which consistently discriminated between the "best" and "worst" spellers. In both sexes the best spellers were found to exhibit attributes which bore a certain similarity to the syndrome of "Willing Obedience" found by Sanford in children. As predicted, Dr. Holmes finds that personality factors account for only a small amount of the total variance in spelling ability.

HOOD, R. E. *Find a Career in Photography*. New York 16: G. P. Putnam's Sons, 210 Madison Avenue. 1959. 159 pp. \$2.75. To illustrate various career possibilities, this guide for young people focuses on the photographer as a man, showing some of the things it takes in talent, character, personality, and training to become successful. In a special section, six great photographers—Alfred Eisenstaedt, Irving Penn, Philippe Halsman, Arthur Rothstein, Sam Falk and William Vandivert—tell how they got started, what their backgrounds and education are, and offer tips to young people. Also covered are the different types

of photographic specialities, emphasizing areas where chances of success are best and explaining what a beginner can do now and in the future to prepare himself for a career in the field. Among the many careers explored are also the many technical photography jobs available for those not interested in becoming cameramen.

HOPPENSTEDT, E. M. *Mystery at Ten Fathoms*. New York 22: Franklin Watts, Inc., 575 Lexington Avenue. 1959. 202 pp. \$2.95. There was evidence in the sunken ship that would prove his father's innocence, and young Michael Geddis was determined to find it, whatever it was. But somebody else wanted the evidence, too. When the strange yacht sailed into the harbor, Michael's search became a race against time, and even death.

HOUGH, RICHARD. *Admirals in Collision*. New York 22: The Viking Press. 625 Madison Avenue. 1959. 182 pp. \$3.95. This is the almost incredible story of the sinking of one of Queen Victoria's greatest battleships, the *Victoria*—in peacetime, in broad daylight, and on a completely calm sea—by the *Camperdown*. Britain's Navy ruled the seas. The admiral commanding her Mediterranean squadron, fearful that the years of inactivity were weakening the seamanship and tactics of the Royal Navy, carried out in 1893 a rigorous training cruise. He loved flashy maneuvers, designed to test his captains and their ships. One day he tested them too far. His flagship was rammed and sank in ten minutes, taking with her 358 sailors.

HOWARD, VERNON. *Pantomimes, Charades, and Skits*. New York 16: Sterling Publishing Company, Inc. 419 Fourth Avenue. 1959. 124 pp. \$2.50. Today, acting-out without words is the rage. This book shows how to portray in pantomime many dramatic situations with appropriate gestures and facial expressions. Whether you are acting out a single word, a whole sentence, or even a dramatic skit, the author gives new ideas. Stage directions and hints for directors are included for all acts and mimes. Long lists of suggestions are included in each section for home parties, classroom presentations, or actual stage performances.

IRWIN, GRACE. *In Little Place*. Grand Rapids 3, Michigan: Wm. B. Eerdmans Publishing Co., 255 Jefferson Avenue. 1959. 216 pp. \$3.50. An attractive, unusually perceptive school teacher in her middle, but very lively forties, Aran Waring finds herself both amused and appalled by what is happening in our modern way of life, particularly in modern education. Indifference toward knowledge and irresponsibility toward society; the mature independence of the well-educated person sacrificed to the dreary conformity of the group; motives and desires shaped more by money and status than by solid values; bewilderment and loneliness in the face of hard moral choices; truth made relative by personal ambition—all this takes on flesh and meaning in the lives of Aran's students and acquaintances.

KANE, H. B. *The Tale of a Meadow*. New York 22: Alfred A. Knopf, Inc., 501 Madison Avenue. 1959. 125 pp. \$3. This is the story of a meadow—the woodchucks, pheasants, and meadow mice. Here are the lush grasses, the wild strawberries, and the daisies and goldenrod that grow along its edges. It is also the story of the birds and the butterflies who fly over it. But primarily, it is a living record of the animals and birds and insects who make the meadow their home. This fascinating story is seen through the eyes and heard through the ears of a boy who has learned to know these inhabitants at firsthand. The

meadow teems with life and the lives of all weave together in this true picture of nature.

KARL, S. D., and B. L. DIEHL, editors. *The College Handbook, 1959-61*. Princeton, New Jersey: College Entrance Examination Board, c/o Educational Testing Service, Box 592, or Box 27896, Los Angeles 27, California. 1959. 600 pp. \$2. This is a book for students who have already decided to go to college and who are now trying to narrow their choice to two or three colleges to which they will later send for catalogues and application forms. To make this "narrowing down" possible, the *Handbook* presents in comparable form descriptions of the 250 member colleges of the College Board, with essential information about each one's location, size, terms of admission, programs of study, freshman year, costs, financial assistance, and where to write for further information.

These statements were prepared by the colleges themselves. All the colleges in the *Handbook* are fully accredited. For that reason the colleges do not refer to accreditation in their statements. Each college was asked to describe briefly its essential characteristics. Colleges are at once very much alike and surprisingly different. It is this elusive difference which the opening paragraph of each statement tries to suggest.

LANGNAS, I. A. *Dictionary of Discoveries*. New York 16: Philosophical Library, Inc., 15 East 40th Street. 1959. 207 pp. \$5. Drawing upon researches published in English, French, German, Italian, Portuguese, Dutch, Russian, and Scandinavian, the author has included the lives not only of the explorers themselves, but also of the great instrument makers and entrepreneurs who made the journeys of discovery possible. He has also included the maritime explorers, the neglected men who pioneered the great land masses.

LAURENCE, W. L. *Men and Atoms*. New York 20: Simon and Schuster, Inc., 630 Fifth Ave. 1959. 317 pp. \$4.50. The author tells of the discoveries of the great pioneers—Henri Becquerel, the Curies, Einstein—and of the explorations into the unknown by Rutherford, Planck, Fermi, Bohr, and many others, that culminated in the "great green supersun" rising over the New Mexico desert in 1945. He tells the story of the German scientists' attempt to build the bomb, and of the heroic exploits of the Norwegian resistance fighters to destroy their key plant. And he describes the lost opportunities and the mistakes that have profoundly altered the course of history in our time. But the book does not stop at the present; it goes on to the future, to give the reader a glimpse of the new world that the atom is already in the process of creating. The author has included an "Atomic Primer," in which he presents a clear, straightforward picture of the universe of the atom and the new and staggering dimensions in space and time that it has revealed to us.

LAYTON, W. I. *College Arithmetic*. New York 16: John Wiley and Sons, Inc., 440 Fourth Avenue. 1959. 212 pp. \$3.50. This textbook is primarily intended for the many students entering college who do not possess the mathematical understanding and skills which are necessary for an adequate handling of the quantitative problems which arise in everyday affairs. Consequently, the book contains a concise yet thorough treatment of arithmetic which carries the subject through the introduction of the algebraic equation. Subjects are treated in adult language with problem subject matter appropriate to adults. While stressing arithmetic, the author also has included material

on the binary system, scientific notation, checking by casting out nines, and some topics from geometry, commercial arithmetic, and algebra.

LEAVITT, J. E. *Carpentry for Children*. New York 16: Sterling Publishing Company, Inc., 419 Fourth Avenue. 1959. 88 pp. \$2.50. Starting with an explanation of tool use, the author shows how to make such things as a sailboat, flower box, tie rack, table lamp, and shoeshine kit. With the help of diagrams and directions, a new, inexperienced carpenter will make a finished object in which he can take pride. All projects have been protested for school use and are suitable for youngsters.

LEDERER, W. J., and EUGENE BURDICK. *The Ugly American*. New York 3: W. W. Norton and Company, Inc., 55 Fifth Ave. 1959. 285 pp. \$3.95. This book is about men and women in Southeast Asia. Here is an ambassador who refuses to learn the language or the personality of the country to which he is assigned; a Catholic priest who wages a lonely, victorious battle against Communism on its own ground; an engineer who works productive miracles with lengths of bamboo and an old bicycle; and a Navy captain.

LESLIE, L. A. *20,000 Words*, Fourth Edition. New York 36: Gregg Publishing Division, McGraw-Hill Book Company, Inc., 330 West 42nd Street. 1959. 256 pp. \$1.48. Because this volume represents a new idea in dictionaries, an explanation of its purpose may be helpful. In nine cases out of ten when you go to the dictionary it is to find how to spell a word or how to divide it at the end of a line. If you do want to uncover some of the finer shades of meaning, usually only the unabridged dictionary will answer.

It is difficult, if not impossible, in a small volume to give definitions without using very small type and a crowded page. Even when the attempt is made, the definitions are necessarily brief and often unsatisfactory. The present volume solves the problem by omitting the unwanted definitions, thus making it possible, even in so small a book, to print the word lists in large type. Much space has also been saved by the omission of unnecessary words of two classes—thousands of short, easy words (*cat, dog*) that present no spelling difficulty, and the many rare, archaic, obsolete, and obsolescent words included in the ordinary dictionary for the sake of lexicographical completeness and, for most users, serving only to clutter up the pages.

Therefore, the present list of approximately 20,000 words represents the useful part of an ordinary dictionary vocabulary of several times that number. Restricting the list to the words actually needed by the user of the book makes those words much more quickly found, because there are fewer words to look through and those words are in larger type that is easier to read. In this Fourth Edition the list has been revised to include many additional words for which users have asked.

LINDQUIST, WILLIS. *Alaska, The Forty-ninth State*. New York 36: McGraw-Hill Book Company, Inc., 330 West 42nd Street. 1959. 112 pp. \$3. Here is the story of Alaska today and of Alaska's yesterdays told in terms of the people (and the animals, too) who have contributed to its history. It is the picture of a land whose coal mines are richer than those of Pennsylvania, whose oil fields may yield more than those of Texas, whose skies are a great crossroads of international aviation. Here, also, is the drama of Alaska's history—the sea otter industry, the Russian settlements, Bering's voyages, Seward's purchases,

the homesteaders, Eskimos, bush pilots, the Gold Rush, the growth of modern cities. Alaska is a land that beckons the bold.

LLOYD, A. C., and R. J. HOSLER. *Personal Typing*, second edition. New York 36: Gregg Publishing Division of McGraw-Hill Book Co., 330 W. 42nd Street. 1959. 127 pp. \$2.84. This is an intensive course and reference manual for writers, students, and all others who wish to learn quickly how to type their own work. Here are drills, practice exercises, problems, explanations, hints, rules, illustrations, etc. The material is arranged in sequence.

LOBSENZ, NORMAN. *The First Book of National Monuments*. New York 22: Franklin Watts, Inc., 575 Lexington Avenue. 1959. 90 pp. \$1.95. Hidden in a rocky canyon in Colorado are the ruins of a stone tower built by prehistoric Indians. In the Arizona desert an amazing variety of flowering cactus that grows fifty feet tall. In a small city in New Jersey is the original workbench of Thomas A. Edison, with some of his many inventions. Near Baltimore, Maryland, is a fortress whose stand against the attacking British during the War of 1812 inspired the writing of our national anthem. These places and many others are a part of our American heritage. They are the national monuments—a wealth of places to visit and enjoy.

LOBSENZ, NORMAN. *The First Book of National Parks*. New York 22: Franklin Watts, Inc., 575 Lexington Ave. 1958. 88 pp. \$1.95. This book describes the national parks under the National Park Service in the U.S. Department of the Interior. It presents scenes and characteristics of each park besides detailing the many outdoor recreations that visitors may enjoy.

MCDONOGH NO. 35 SENIOR HIGH SCHOOL. *Organizing for the Improvement of Instruction Three Track Plan*. New Orleans 12, Louisiana: McDonogh No. 35 Senior High School, 655 S. Rampart Street. 1959. 134 pp. Mimeographed. The McDonogh No. 35 Senior High School's three track program was instituted in the fall of 1958 after several years of careful study which included exploratory experimentation with the grouping of pupils in mathematics. The study of the academic achievement of pupils by the faculty, by the parents, and by the pupils led to the decision to organize the pupils into three groups which were designated tracks. After one year of formal work with the program, the faculty exercised its leadership in an effort to appraise what had taken place during the year. This report represents a description of the program itself as well as a summation of the efforts to assess its effectiveness during the first year.

The report is presented in six parts. The first part sets forth the basic assumptions on which the program was developed. While the second part defines the Three Track Plan, it places particular emphasis upon the importance of participation in decision making by all persons associated in the teaching and learning process. For those who would charge that grouping is undemocratic, the implications in this presentation should be challenging.

A description of the plan in operation during the first year is given in Part III. The evaluation, which was concerned with making an assessment of the program in terms of its effect upon pupil attendance and drop-outs; course failures; the general achievement of pupils; marking and grading; and attitudes of the pupils, the parents, and the faculty is summarized in Part IV. Part V is an abbreviated statement of the recommendation regarding the future of the program.

Since many techniques and instruments were employed in operating and evaluating the program, these are presented in the Appendix or Part VI. These are thus treated because their incorporation into the body of the report would have interfered with continuity in reading. However, this treatment is in no way intended to minimize the importance of the materials. They are considered essential to extending an understanding of the report and substantiating its validity.

McGEE, D. H. *Herbert Hoover, Engineer, Humanitarian, Statesman*. New York 16: Dodd, Mead & Co., 432 Fourth Ave. 1959. 308 pp. \$3.50. The many fascinating events and achievements in the life of one of our great Americans are described in this inspiring story of an orphan boy who, without resources, rose to the summit of three great careers: engineer, humanitarian, and statesman. The entire career of Herbert Hoover is covered from his Iowan boyhood to his present high position in the esteem of his grateful fellow-Americans.

MEEHAN, J. R. *How To Use the Calculator and the Comptometer*. New York 36: Gregg Publishing Division, McGraw-Hill Book Company, Inc., 330 West 42nd Street. 1959. 144 pp. \$1.64. This fourth edition provides for basic instruction, skill development, and practical application. It covers all four fundamental arithmetic processes—addition, subtraction, multiplication, and division. The student's progress is carefully paced and sustained by continuous drill, doublecheck, and review exercises. The presentation is flexible so that it may be adapted to specific classroom conditions. The directions cover all three popular makes of calculators—Burrough, Comptometer, and Plus.

The teacher will find many new features in the fourth edition. The new format has been designed for maximum motivation and teachability. The book is organized into three cycles of twelve lessons each. The first cycle deals with the development of basic operating techniques and skills. Lessons 1 through 4 stress the correct stroking technique for the vertical and horizontal addition of two-, three-, and four-digit amounts.

The second cycle of twelve lessons reflects a dual emphasis. Stress on the development of higher level skills and techniques is continued. The student also learns how to apply the machine skills to the efficient solution of practical business problems.

A timed review is given at the end of each lesson so that the student's progress can be measured regularly and so that he may be stimulated to maintain his skills at a high level of competency. A comprehensive test of fifty problems stressing both the fundamental arithmetic operations and their practical business application is provided at the rear of the text.

MEHLIN, T. G. *Astronomy*. New York 16: John Wiley and Sons, Inc., 440 Fourth Avenue. 1959. 400 pp. \$7.95. This book makes the great sweep of astronomy evident from the beginning. The first chapter deals with instruments and light, the tools of the astronomer. The second outlines the life story of a typical star, since a star is the most fundamental unit in the entire astronomical universe. The sun, the dominant object in the solar system and the only star whose surface details can be observed individually, is next considered. Chapters on binary stars and intrinsic variables round out the treatment of stars as individuals.

Turning to stellar systems, the author presents a comprehensive picture of the metagalaxy, with emphasis on our own Milky Way System and the population types, star clusters, and vast clouds of gas and dust of which it is composed. Against a background of sidereal and galactic astronomy, the book focuses on the solar system—discussing what it is, where it came from, and the probability of the existence of other similar systems.

The material is organized to provide the reader with a clear and logical understanding of the current knowledge of the astronomical universe. Modern research tools, such as radio telescopes and observations from high-altitude balloons and artificial satellites, are considered at those points in the development at which their contributions become significant. The author anticipates the further growth of astronomical knowledge by recognizing many of the unsolved problems that are challenging our research observatories today. Topics such as coordinate systems and time, which make little or no direct contribution to the understanding of the astronomical universe, have been placed in the appendix, to be used if needed.

MEHRENS, H. E. *The Dawning Space Age*. Houston, Texas: Civil Air Patrol, Ellington Air Force Base. 1959. 224 pp. \$2. This is the seventh book of a series prepared primarily for use by cadets in the Civil Air Patrol aviation education program. The book will also be found of value by secondary-school instructors and by students in science courses or in other courses concerned with the nature and uses of the rocket engine and the derivative social, economic, and political effects of their uses.

The purpose of this book is to describe in terms of student understandings the rocket, its components, and its applications. Among the major areas, it discusses propulsion and guidance systems, military missiles, and research vehicles, and certain of the obstacles encountered by those attempting to solve the problems of space flight. The treatment of these areas is elementary and quite general. Therefore, the book is of value primarily as it helps lay a foundation of understandings upon which the student builds during his more advanced professional or technical studies. It is of value also as it stimulates the interest of students in the field of science and broadens their understandings of the complexities of the age in which they live.

OKUN, LILIAN. *Let's Listen to a Story*. New York 52: The H. W. Wilson Company, 950 University Avenue. 1959. 273 pp. \$3.50. In February 1960, *Let's Listen to a Story* program for children will begin its 16th year of broadcasting over radio station WMCA in New York. Written, produced, and directed by Lilian Okun, the program has won the first award from the Institute for Education Radio and Television of Ohio State University, as well as many PTA, YMCA, and other awards. Recognizing the popularity and outstanding quality of this program, Miss Okun was asked to select a number of the most interesting of her radio adaptations for publication. This book is the result of the selection. Out of more than 1,200 scripts broadcast on the program, Miss Okun has chosen 16 as best for general radio, school, and library storytelling.

POSIN, D. Q. *Out of This World*. Chicago 11: Popular Mechanics Press, 200 East Ontario. 1959. 192 pp. \$3.95. Filled with explanatory illustrations by the author (whose blackboard doodles on TV are famous), the book covers hundreds of subjects concerning our universe, from the

Milky Way to anti-matter, from little green men in flying saucers to the theory of relativity as it applies to space travel. The author discusses the possibility of interstellar visits from other planets, what it would be like to ride in a space rocket, and the United States-Russian race to place a man on the moon. Here in one book is an encyclopedic summary of what goes on—and what we hope to discover.

QUENNEL, MARJORIE and C. H. B. *Everyday Life in Prehistoric Times*. New York 16: G. P. Putnam's Sons, 210 Madison Avenue. 1959. 276 pp. \$3.50. This factual account, based upon the findings of archaeologists, reconstructs in imaginative fashion the day-to-day life of our prehistoric ancestors. With photographs and numerous animated line drawings, the authors realistically indicate how man learned to use shelters, clothing, and simple tools to make his nomadic life more comfortable. Having presented the methods for determining ages and epochs by geology, the book traces the development of man, from the Pithecanthropus, the supposed link between gibbon and man, to the very civilized Celts in what is now England. At the same time, it follows the inventive genius of man, from the simple flint tools and cave dwellings of the Old Stone Age to the metal "power tools" and ornaments, forts, and lake villages of the Early Iron Age.

RATIGAN, WILLIAM. *The Long Crossing*. Grand Rapids 3, Michigan: Wm. B. Eerdmans Publishing Co., 255 Jefferson Avenue. 1959. 162 pp. \$3.25. Here is the story of the New York newsboy who sold papers on the Brooklyn Bridge and who used to stare up at the great suspension cables with dreams in his eyes until he could no longer keep the secret in his heart but had to shout it out to his friends: "Someday I'm going to build a bridge like that!" The other newsboys laughed at young David Steinman in his ragged clothes, clutching pennies in his fist, but he grew up to hold a check for one hundred million dollars in his hand, payment for the longest and costliest bridge in world history—the Mackinac Bridge.

REINHOLD, MEYER. *Classical Drama Greek and Roman*. Great Neck, New York: Barron's Educational Series, Inc., 343 Great Neck Road. 1959. 342 pp. Paper \$1.95; cloth \$3.50. This comprehensive survey of the dramatic literature of the Greeks and Romans is intended to serve the needs and interests of a variety of readers: students of classical literature; students of English, world, and comparative literature; and the general reader with an interest in the drama.

Of the thousands of plays written in antiquity, only eighty-five are extant, most preserved in their entirety, some in extensive enough portions to make possible their reconstruction. Each of these plays has been analyzed and interpreted. The interpretations are not intended to be definitive, but suggestive of the probable intent of the respective authors. To place the plays in their proper frame of reference, essential biographical data have been given for each playwright, and each period has been provided with a summary of the historical and cultural milieu in which they wrote. Special attention has been given to tracing the evolution of the classical drama from its birth in the cult of the Greek god Dionysus to its decline in the Roman Empire and its ultimate extinction with the rise of Christianity.

The bibliographies, containing more recent works in English selected from the vast literature on the subject, are intended to aid those who desire to

explore more thoroughly particular authors or topics. A special bibliography on the influences of the classical drama on later literatures is included.

ROBBINS, R. W., and EVAN JONES. *Hidden America*. New York 22: Alfred A. Knopf, Inc., 501 Madison Avenue. 1959. 288 pp. \$5. Many landmarks of the American past lie buried under the dust and rubble of the years. In this book, a remarkably successful pick-and-shovel historian, in collaboration with Evan Jones, tells how he applied the techniques of archaeology to the rediscovery of some of these lost landmarks. His successes include Thoreau's cabin at Walden, Thomas Jefferson's birthplace, the Saugus Ironworks in Massachusetts, a seventeenth-century Dutch port on the Hudson, and others. He also writes about Indians, mounds, Viking encampments, buried forts, and other American sites that have been uncovered by others or await a skillful digger.

ROUSE, W. H. D., translator. *The March Up Country: Ambasis, Xenophon*. New York 22: New American Library of World Literature, Inc., 501 Madison Avenue. 1959. 192 pp. 50c. This is the famous account of how 10,000 Greeks stranded in enemy territory fought their way—some 1500 miles—back home. A modern translation.

ROWE, J. R., and FABORN ETIER. *Typewriting for Speed and Accuracy*, second edition. New York 36: Gregg Publishing Division, McGraw-Hill Book Company, Inc., 330 West 42nd Street. 1959. 96 pp. \$1.76. This book contains practice exercises and instruction for the student who wishes to increase his speed and accuracy in typing.

SCHOOR, GENE. *Bob Turley, Fireball Pitcher*. New York 16: G. P. Putnam's Sons, 210 Madison Avenue. 1959. 192 pp. \$2.95. Here is the life story of Robert Lee Turley, husky right-hander of the New York Yankees, a player with perhaps the strangest up-and-down career in major league baseball.

SIPLE, PAUL. *90° South*. New York 16: G. P. Putnam's Sons, 210 Madison Avenue. 1959. 384 pp. \$5.75. On September 18, 1957, a small group of men clustered around a thermograph and watched as the temperature fell to a new official record experienced by man. The reading was minus 102.1°. The place was the South Pole.

The story of how and why these men, eighteen in all, were there, living through a treacherous South Pole winter where no man ever had attempted to remain before, is the story of *90° South*. It is a story that begins with the first men to sight the Antarctic continent, runs through the adventures of the earlier explorers who struggled to reach the fabled Pole, and deals with the American expeditions led by Admiral Richard E. Byrd, who was first to reach the Pole by air. But chiefly this is the story of the twenty-four U.S. Navy Seabees under whose skilled hands a tiny community of eight polar huts arose at the South Pole, and of the eighteen American scientists and Navy men who spent a year in this community. All winter long the men labored to pry from nature the secrets hidden for ages in the ice and frigid skies of the Pole.

SMITH, N. B. *Be a Better Reader*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1959. 176 pp. This book is designed to (1) improve the common skills needed in reading all types of material, and (2) give practice in special skills needed in reading history, science, literature, and mathematics. The topics were selected for their appeal to senior high-school stu-

dents and the frequency with which they appear in high-school textbooks. The skills are those most often needed in studying text and reference books at this level. The special vocabularies include technical words common to the most widely used high-school texts in science, history, literature, and mathematics. Hence this book should fit into and reinforce the average high-school curriculum. It can be used effectively for either remedial or developmental instruction. Section One is devoted to instruction and practice in the common reading skills. In Section Two, a complete chapter is devoted to explaining and giving practice in skills for each specific study area. A special chapter covers the use of reading in connection with examinations. A *Teacher's Guide* containing answers to all exercises is available.

SOLOMON, JACK, JR. *Complete Handbook on Labor-Management Relations*. Chicago 90: National Debate Research Company, Box 1161. 1959. 185 pp. \$3.50. This book has been prepared as an aid to debaters interested or participating in debating the National high-school debate topic on labor-management during the present school year. Chapter I discusses labor movement in the United States, Chapter II discusses laws and concepts, Chapter III is a glossary of labor-management terms, Chapter IV is a bibliography of pertinent source material, Chapter V is composed of outlines of three phases of this problem, Chapter VI is composed of affirmative briefs of the following 3 questions—"Resolved: That the Federal government should substantially increase its regulation of labor unions"; "Resolved: That the Federal government should require arbitration of labor disputes in all basic industries"; and "Resolved: That Section 14 (b) of the National Labor Relations Act should be repealed." Chapter VII presents the negative brief of these three problems. Chapter VIII is an evidence file which is keyed in by number to the briefs of the previous two chapters, while Chapter IV is a "Who's Who" in labor-management relations.

STEFFAN, JACK. *Mountain of Fire*. New York 36: The John Day Co., 62 West 45th Street. 1959. 191 pp. \$3.50. In California's rugged northeast, where the Sierra Nevada range meets and mingles with the Cascades, stands the last active volcano in the United States. A century ago and more, the Atsugewi Indians and neighboring tribes who spent their summers there knew it as simply "The Mountain." Although they lived peacefully upon its slopes, they felt its smoldering power.

SUTCLIFF, ROSEMARY. *The Lantern Bearers*. New York 3: Henry Z. Walck, Inc., 101 Fifth Ave. 1959. 260 pp. \$3.50. When the last of the Roman Auxiliaries set sail in their galleys and left Britain for ever, they abandoned the country to internal strife and to the menace of invasion by Saxons. These were dark days indeed for Aquila, a young Roman officer who decided at the last moment that his loyalties lay with Britain rather than the Legions. He returned to the family villa in the downlands, only to have all that he loved destroyed by the invaders. He himself was carried off into thralldom; yet even when a chance to escape presented itself, his freedom brought him little joy, for he had learned that his sister was married to a Saxon, and the knowledge filled him with bitterness. It took many years of hardship, of strenuous fighting under the Roman-British leader Ambrosius against the treacherous Vortigern and his Saxon allies, before he found a measure of contentment; a contentment partly learned from the kind and

gentle Brother Ninnias, partly from the loving loyalty of his British wife Ness, and partly from an encounter with his sister's son who was fighting with the enemy.

SUTTON, FELIX. *The Illustrated Book About Africa*. New York 10: Grosset and Dunlap, Inc., 1107 Broadway. 1959. 102 pp. (10" x 12 $\frac{3}{4}$ "). \$3.95. This book, with an introduction by Stuart Cloete and illustrated by H. B. Vestal, tells the story, in words and pictures, of this vast and little-understood continent. Africa is becoming increasingly important to the rest of the world for its almost inexhaustible mineral resources and its all but untapped agricultural potential. This is a beautiful book with pictures in color.

THOMAS, E. W. *The Torch Bearer*. New York 22: Franklin Watts, Inc., 575 Lexington Avenue. 1959. 184 pp. \$2.95. "I was a torch bearer for my people," said the old Indian, and twelve-year-old Nanabah listened excitedly while he told of the days when he lighted the way for his people through dark and perilous mountain passes. What Nanabah did not know was that some day she, too, would be a torch bearer in the modern world which her people were struggling to understand. This is a warm and colorful story of a young Navajo girl who found her life's work where she least expected to find it—on the Indian reservation where she was born.

UPTON, C. B., and K. G. FULLER. *American Arithmetic*. New York 3: American Book Company, 55 Fifth Avenue. 1958. Grade seven, 348 pp. of text and 144 pp. of teacher's guide and key; grade eight, 380 pp. of text and 160 pp. of teacher's guide and key. \$3. each. The constant aim in these two books for grades 7 and 8 is to teach arithmetic so that pupils understand and enjoy it. Throughout these books, special attention is given to basic concepts and terms, comprehension of the fundamental processes, meaningful processes through motivating problems, and fundamental principles. The books contain many challenging projects in which arithmetic is related to everyday activities. Problems and explanations are written in clear language and provision is made for the maintenance of skills in computation and problem solving. The pupil is introduced to informal geometry and the use of formulae and graphs. The books are attractive and made appealing by the use of arrangement of material, pictures, and color.

WEDDLE, FERRIS. *Blizzard Rescue*. New York 22: Franklin Watts, Inc., 575 Lexington Avenue. 1959. 117 pp. \$2.95. Clint Wade could scarcely believe his good fortune. He was to spend five days in mountain country, helping take the winter game census with his father, who was a game department biologist. What a chance to camp in wild country and what an opportunity to add to his collection of wildlife photographs! When a blizzard caused an accident to Clint's father, he found himself face to face with the poachers, with many decisions to make. How, with the help of his camera and Trapper Bill, he met the challenge of danger and emergency makes a thrilling story of adventure and the out-of-doors.

WIBBERLEY, LEONARD. *The Quest of Excalibur*. New York 16: G. P. Putnam's Sons, 210 Madison Avenue. 1959. 190 pp. \$3.50. Their series of hilarious adventures is told with Mr. Wibberley's well-known blend of wit and wisdom, fantasy and truth. The whole is another of the author's wildly entertaining satirical novels.

WILEY, B. I., and H. D. MILHOLLEN. *They Who Fought Here: A Pictorial History of the Soldier 1861-1865*. New York 11: The Macmillan Company, 60 Fifth Avenue. 1959. 273 pp. \$10. This book tells in picture and text all of what happened to the fighting soldier on both sides in the Civil War. Bell Wiley has written the text out of his great knowledge of contemporary diaries and letters. Hirst Milhollen searched for and found in public and private collections, in libraries, museums and historical societies, both North and South, the pictures to embellish the text. The resulting book is a lasting monument to the fighting soldier, Confederate and Union.

WILLIAMS, M. T., editor. *The Art of Jazz*. New York 11: Oxford University Press, Inc., 114 Fifth Avenue. 1959. 256 pp. \$5. Although jazz is generally considered to be among America's important contributions to the arts, intelligent criticism in this field is very rare. Here is a collection of the best writing on the subject; an anthology that examines jazz as an art form worthy of serious consideration and treats such notable jazz musicians as King Oliver, Duke Ellington, Bix Beiderbecke, and Bessie Smith as artists in their own right.

Much jazz reviewing has been biased, publicity-conscious, and hysterical. These, however, are critical articles of lasting value. They deal with every phase of jazz—from Ragtime to Bop, through Dixieland, the Blues, and Modern Jazz Quartet—in a manner which helps the enthusiast listen to jazz more intelligently and with a greater understanding. Written at various periods ranging from the first World War to the present day, the articles include Swiss conductor Ernest Ansermet's tribute to Sidney Bechet; Marshall Stearns discussing folk blues; and an analysis of Art Tatum by André Hodier.

WILLSON, MEREDITH. *But He Doesn't Know the Territory*. New York 16: G. P. Putnam's Sons, 210 Madison Avenue. 1959. 190 pp. \$3.50. One million happy theatre-goers have seen Meredith Willson's *The Music Man* at the Majestic Theatre in New York since it opened on December 19, 1957. Hundreds of thousands more have enjoyed the National Company as it played Los Angeles, Dallas, San Francisco, Denver, Omaha, Des Moines, Cincinnati, Kansas City, and Chicago. Meredith Willson wrote the music, the lyrics and the libretto of *The Music Man*—all delightful. Now he has written a book about writing the show—equally delightful.

WOODWARD, HELEN. *General Billy Mitchell*. New York 16: Duell, Sloan and Pearce, Inc., 124 E. 30th Street. 1959. 181 pp. \$3.50. Billy Mitchell was America's first great airman, but long before he became the pathfinder and prophet of the new air age, he had been leading one of the most exciting and adventurous lives of modern times. The first biography of Mitchell for younger readers, this entirely new book is based on the standard biography of Mitchell by Isaac Don Levine.

ZARCHY, HARRY. *Jewelry Making and Enameling*. New York 22: Alfred A. Knopf, Inc., 501 Madison Avenue. 1959. 122 pp. \$2.95. This is a practical guide for beginners of all ages who would like to do enameling and make jewelry. This book may be used at home, at school, or at camp. You do not need an extensive shop in order to make the projects described. Some specialized tools are shown and their uses described, but wherever possible an alternate method is also shown.

ZAREM, LEWIS. *New Dimensions of Flight*. New York 10: E. P. Dutton and Company. 300 Park Ave. South. 1959. 256 pp. \$4.50. Man's conquest of the air and space is clearly and simply explained in this up-to-the-minute book designed to give young people a basic understanding of the forces of flight which are so greatly affecting their daily lives. Ideal for both reading and reference, it provides a provocative, step-by-step explanation of the principles, concepts, and vehicles of flight, from faster-than-sound airplanes to the conquest of space.

News Notes

A CHANGE IN NAME

The Cooperative Study of Secondary School Standards after 26 years has changed its name to the National Study of Secondary School Evaluation. The address remains the same; namely, 1785 Massachusetts Avenue, N. W., Washington 6, D. C.; the purposes remain the same; the well known *Evaluative Criteria* remains the same; all that is changed is the name.

The Cooperative Study of Secondary School Standards published the 1940 and 1950 editions of the *Evaluative Criteria*. The National Study of Secondary School Evaluation will publish the 1960 edition of the *Evaluative Criteria* in July 1960.

FEDERAL SHARING IN COST OF EDUCATION A NECESSITY

President Walter W. Eshelman of the National Education Association stated that the pricetag for excellence in education comes high, but failure to pay up may cost our survival as a free nation. Calling on Americans to "run up the flag of quality over their schoolhouses," Mr. Eshelman announced that the NEA Executive Committee and Board of Directors had strongly reaffirmed the Association's stand for Federal support of education, as embodied in the principles of the Murray-Metcalf bill introduced into the 86th Congress.

In a resolution, the 81-member Board composed of representatives of 50 states, the District of Columbia, and Puerto Rico, called on Congress immediately upon its reconvening in January, to enact Federal support legislation which would "leave to the states authority to allocate the funds as needed for salaries, school construction, or both, so as to maintain the principle of state autonomy in education."

HIGH-SCHOOL DROPOUTS

The Department of Classroom Teachers and the Research Division of the NEA have recently published a pamphlet entitled *High-School Dropout: A Problem for Today and for Tomorrow*. Copies of the booklet may be secured for 25 cents each from the National Education Association, 1201 Sixteenth Street, N. W., Washington 6, D. C.

TEACHER CERTIFICATION

The question of changes in the certification of teachers has received national attention over the past several years. A special study of this problem has been undertaken by the New York State Education Department. Its report appears under the title of "Report of the Academic Teacher Certification Project." A number of recommendations are discussed in this report. The adviser group making the study has recommended raising the academic requirements for admission to the teaching profession. The decision is based on a consideration of the minimum education needed today for a teacher of youth growing into the world of tomorrow.

For permanent certification, a five-year program including the baccalaureate degree is required and the advisory groups have stressed the necessity of a program-taken-with-advice contrasted with a self-selected assortment of courses. As a consequence of this emphasis, the report places great responsibility on higher institutions preparing teachers to devise programs of the highest quality. Such progress should be compatible with the spirit and the broad outline of the regulations of the state commissioner of education. The complete report, issued by the Office of the New York State Assistant Commissioner of Higher Education under date of September 10, 1959, is composed of 47 mimeographed pages. Some of the highlights of the recommendation are:

General-liberal studies must comprise at least one half the total undergraduate preparation distributed among the humanities, the social sciences, and the natural sciences and mathematics.

The fifth year of preparation should represent a cohesive body of study aimed at strengthening the candidate's effectiveness as a teacher of the subject for which certification is sought.

For permanent certification in *English*, a minimum of 42 semester hours is required plus 30 semester hours in advanced work which represents a cohesive body of study relevant to the field of English. For provisional certification, a minimum of 42 semester hours in specified areas of English is required.

In a *foreign language*, 36 semester hours are required for permanent certification; 24 for provisional. Evidence of competence must be provided in seven areas of language study. Provision is suggested to regularize the certification of atypically prepared candidates.

For permanent certification in *mathematics*, 33 semester hours are required including a full year of differential and integral calculus. For provisional certification, 18 semester hours are required including a full year of differential and integral calculus.

A math-science core is recommended for all prospective teachers of a *science*. The core plus the equivalent of four full-year courses in science are required for permanent certification. Provisional certification requires the completion of the core plus one full-year course in the science to be taught. Certification to teach physics, chemistry, biology, or earth science is deemed satisfactory to teach general science.

For permanent certification in the *social studies*, a total of 72 semester hours in the social sciences are required. Of this total, 24 must be of an advance nature and concentrated in not more than two of the social sciences. Provisional certification calls for 48 semester hours in social sciences with a concentration of at least 24 hours in one.

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NATIONAL TEACHER EXAMINATIONS—FEBRUARY 13, 1960

The National Teacher Examinations, prepared and administered annually by Educational Testing Service, will be given at 160 testing centers throughout the United States on Saturday, February 13, 1960. At the one-day testing session, a candidate may take the Common Examinations, which include tests in Professional Information, General Culture, English Expression, and Non-verbal Reasoning; and one or two of twelve Optional Examinations designed to demonstrate mastery of subject matter to be taught. A Bulletin of Information (in which an application is inserted) describing registration procedures may be obtained from college officials or school superintendents, or directly from the National Teacher Examinations, Educational Testing Service, 20 Nassau Street, Princeton, New Jersey. Completed applications, accompanied by proper examination fees, will be accepted by the ERS office so long as they are received before January 15, 1960.

TWO SUMMER INSTITUTES IN THE HUMANITIES

Two Summer Institutes in the Humanities will be sponsored, July 1-30, 1960, by the John Hay Fellows Program. One will be held at Bennington College, Bennington, Vermont; the other at Williams College, Williamstown, Massachusetts. Approximately 75 public high-school teachers and 25 public school administrators and school board or school committee members will participate in the Institutes. In seminars they will read and discuss several significant books; in small classes they will study literature, history, and philosophy. There will be special courses in music and art, and full use will be made of the Summer Theater and the Sterling and Francine Clark Art Institute in Williamstown and of the Berkshire Music Festival at nearby Tanglewood. The faculty of the Summer Institutes in the Humanities will consist of professors from Bennington, Oberlin, and Williams Colleges, and Columbia, Rutgers, and Wesleyan Universities.

The 75 teachers will be selected from academically sound high schools which are interested in making effective use of the time and talents of their teachers and in breaking educational lock steps. Applicants should have had at least five years of high-school teaching experience and should be not more than fifty years old. Special invitations will be sent to school administrators and to school board or to school committee members. Each participant will receive \$310 for the four-week period, plus \$62.50 for each dependent to a maximum of four, and a travel allowance to a maximum of \$100 for each participant. The charge for meals and a room in a dormitory for four weeks will be \$145 for each person.

Participants in the Summer Institutes in the Humanities will come from seventeen states and the District of Columbia. The states include: Arizona, Colorado, Connecticut, Illinois, Louisiana, Maryland, Massachusetts, Michigan, Missouri, New York (outside metropolitan New York City), North Carolina, Ohio, Oregon, Pennsylvania (outside metropolitan Philadelphia), Utah, Virginia, and Washington. Correspondence should be addressed to Charles R. Keller, Director, John Hay Fellows Program, 9 Rockefeller Plaza, New York City. Applications will close on March 1, 1960.

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TWO YEARS OF A FOREIGN LANGUAGE REQUIRED

Students entering the College of Liberal Arts and Sciences and curricula in art and music in the College of Fine and Applied Arts of the University of Illinois will be required to have two years of high-school study in a foreign language effective in September 1964. The change was made by the Board of Trustees who rescinded an action of April 25, 1940, which waived the normal foreign language requirement for admission to these two colleges for students graduating in the upper half of their classes. When the new rule becomes active, only students coming from high schools which do not offer foreign languages will be exempted. The foreign language requirement for admission in these two colleges will be fulfilled by two units of any foreign language in which the University offers instruction. Currently, these are French, German, Greek, Italian, Latin, Portuguese, Russian, and Spanish.

REDUCING TEACHER CLERICAL WORK

In an effort to relieve teachers of clerical duties, two of the abominable chores of the home-room teacher have been eliminated at the Frank B. Willis High School of Delaware, Ohio—Thomas D. Graham, Principal. One is the figuring of the six-week attendance report; and the other, the recording of grades. Both of these tasks have been assumed by the principal's office, and the advantages are proving both numerous and satisfying to teachers and administrators alike.

Attendance Reporting

The responsibility of the home-room teachers in this six-year high school of 1,150 is to report absentees from the home room. A master list of absentees is prepared and distributed to all teachers within the period following the home-room period. Each period during the day, classroom teachers report pupils who are absent but whose names are not on the absentee list, or pupils who are present but were absent from the home room.

A set of attendance record books, one for each of the 39 home rooms is kept in the office. Once a week, usually on Saturday morning, a clerk in the office records absence and tardiness data in the home-room record books. This takes some two to two and one-half hours.

At the end of a six-week period, absences and tardiness are cumulated for each pupil, and a report is made showing totals of absence and tardiness, for boys and girls separately, for each home room. A list of entries and withdrawals for the six-week period is prepared, and days not due determined for each pupil. A statistical report is then prepared, by home rooms, showing enrollment, days due, days absent, days present, times tardy, and percentage of attendance. Next comes a cumulative report for grades 7 and 8, for grades 9 through 12, and for the whole school.

A typical attendance period ends on Friday. By working Saturday morning, and during Monday and Tuesday, along with daily routines, the complete job is finished by Tuesday afternoon. The advantage to the teachers is the elimination of a disliked detail task, and a statistical operation that is very difficult for some. The advantage to the administration is that it is probably as easy (easier!) to do the whole operation as to correct(!) and coordinate the reports of 39 home-room teachers.



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Grade Recording

Another task that has been a chore for home-room teachers has been the recording of grades on register sheets, report cards, and permanent records. Added to the teachers' dislike for this kind of task has been the principal's concern for a job done by some forty people, with forty variations of handwriting, and forty interpretations of procedure in one of the most vital of administrative operations. To streamline this operation, the following procedure has been established. The classroom teacher makes out duplicate report cards for each pupil for each subject. (Pupils' cards are printed with black ink; office cards are printed with blue ink.) The office cards are turned in in class groups. Before breaking up class groups, a study is made of the distribution of grades in various classes. A sorting box has been made and cards are then sorted into home-room groups. Home-room groups are sorted alphabetically and the several cards for one pupil arranged in order (English, language, mathematics, science, social studies, business education, practical arts, fine arts, and physical education).

An office record card (5 x 8) is made for each pupil, and subject and grade entered along with number of absences and tardiness in each class. The recording is done by one or two clerks. The uniformity of procedure tends to reduce error, and the records are available to the principal as soon as to the pupil. The grades are then always available on the principal's desk, not filed in the desks of 39 home-room teachers.

A typical grading period ends on Friday. Grade cards are distributed (and given to the office) on Wednesday following. (Attendance reports have been completed and are out of the way.) Grade recording is completed within a week.

HIGH-SCHOOL JOURNALISM FELLOWSHIPS FOR TEACHERS

The Newspaper Fund, for the second year, is offering fellowships to high-school teachers who wish to improve their professional knowledge of journalism. Through grants provided by the *Wall Street Journal*, the Fund announced that a minimum of 100 fellowships would be offered for summer study in 1960. The fellowships have a maximum value of \$1,000 each, depending upon the individual needs of the applicant. Teachers in the United States who teach high-school journalism or are advisers of high-school publications are eligible to apply.

During 1959, the Newspaper Fund initially offered fellowships to 25 teachers. The interest and number of applications proved so great that the *Wall Street Journal* tripled its initial contribution and 131 persons were awarded fellowships.

Under the program, a teacher is allowed to indicate his choice of university and the journalism courses he proposes to take. Lack of previous formal training or practical experience in journalism does not constitute a bar to eligibility. The purpose of the program is to encourage better teaching of journalism in high schools, to improve the quality of high-school newspapers, and to point out the career opportunities that are available in journalism for talented young people. Further information and application forms may be obtained by writing to Don Carter, Executive Director, The Newspaper Fund, Inc., Room 2700, 48 Wall Street, New York 5, New York.

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EIGHT NEW CURRICULUM GUIDES

The Publications Office of the Minneapolis Public Schools, 807 N. E. Broadway, Minneapolis 13, Minnesota, distributed eight new curriculum guides to teachers in the secondary school. These are (1) *Office Skills I and II* (48 pp.), (2) *Junior High-School Typewriting* (21 pp.), (3) *Typewriting I and II* (50 pp.), (4) *Typewriting 2A* (10 pp.), (5) *Senior Typewriting* (10 pp.), (6) *Senior Shorthand* (12 pp.), (7) *Stenographic Skills I and II* (56 pp.), (8) *a Guide to the Teaching of Reading, Listening, and Viewing*, Grades 7-12 (75 pp.). The first seven are curriculum guides in business education. The purpose of these typewriting courses is to meet the vocational and personal use of students. *Senior Typing* is a special accelerated course for one-semester college-bound students or for students who will need it for their own personal business use. *Senior Shorthand* is likewise an accelerated course for above-average students who complete a 2-year course in half the time. *Stenographic Skills I and 2* is a terminal course designed for students who are currently enrolled in advanced shorthand and who wish to prepare for stenographic positions upon graduation. It combines previously learned skills in typewriting, shorthand, and English usage and extends these skills further.

The *Guide to the Teaching of Reading, Listening, and Viewing* for grades 7-12 is to give students experiences which will develop their skills in these three areas. Since all teachers have not had specific training in teaching, reading, listening, and viewing, the *Guide* presents a general backgrounding in the three areas supplemented by specific information intended to help content-area teachers in each of eleven departments. The planned learning experiences included in the *Guide* have been used successfully by Minneapolis teachers. These experiences have been drawn from the various subject fields to demonstrate again the importance of the communication process in all areas of the curriculum. The clearly defined goals for each learning experience are followed by a step-by-step description of a lesson or project.

Although these publications for teachers' use are not available in quantity, single copies of the *Guide to the Teaching of Reading, Listening, and Viewing* may be obtained by sending \$2 to the publications office at the address above. Copies of the other 6 guides may be obtained from the same source at 75 cents each.

NEW ART EDUCATION MAGAZINE

A new journal of issues and research in art education is being published semi-annually by the National Art Education Association of the NEA. The first issue appeared in December 1959, the second will appear in April 1960. The magazine, *Studies in Art Education*, is aimed at professors of art and art education in colleges and universities, directors of art in state and large school systems, professors and researchers in education. It provides a scholarly platform for critical commentary as well as new ideas and projects, bringing together related efforts in aesthetics, art criticism, psychology, and sociology as they affect art education theory. *Studies in Art Education* may be ordered from the National Art Education Association, NEA, 1201 16th St., N. W., Washington 6, D. C. Subscription rate is \$3.00; single copies, \$1.75.

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A record number of 46 tours is being planned for next summer by the NEA Division of Travel Service. Included are four tours around the world, 17 to Europe, and two to Russia. Eight tours will be to Latin American countries, six to Hawaii, and three to Alaska. To complete the schedule are six tours to points of interest in the United States or in Canada. It is expected that more than 1,000 teachers will take advantage of these travel opportunities. On some tours, academic credits, both graduate and undergraduate, may be earned.—NEA News.

LANGUAGE TRAINING AIDS

Language Training Aids, Inc., has announced a new and greatly enlarged catalog of *realia* for foreign language and English. Tape recordings, records, slides, filmstrips, flash cards, games, and magazine subscriptions are listed. There are listings for 35 languages. Included are many new Russian tapes on a variety of subjects, such as the alphabet, pronunciation, the Russian school, the Russian apartment, and the Russian family. Instructors, students, and libraries may obtain a copy by writing to Language Training Aids, Inc., Language Center, Boyds, Maryland. Please include 25c for postage and handling.

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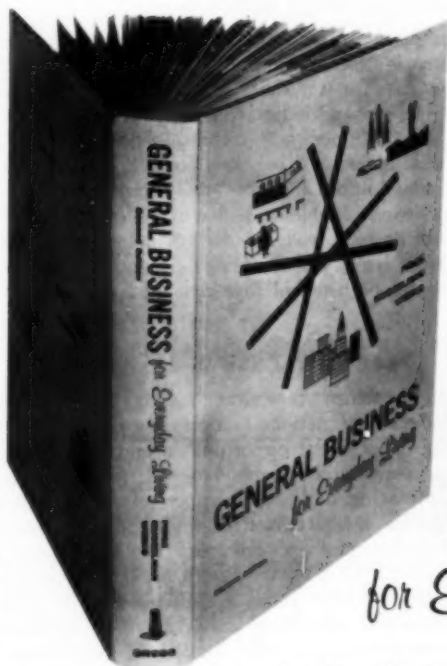
NET Film Service of Indiana University has available a driver education series for classroom instruction or general adult audiences. The new series of 29 films is based on the driver education program for the Cincinnati public schools conducted for two years through the facilities of WCET television, Cincinnati. Film inserts, magnet board models, dummy automobile controls, and rear screen projection are used to illustrate driving techniques. The series was produced with the counsel of an advisory committee of nine educators prominent in safety education appointed by the National Commission on Safety Education of the National Education Association.

The series emphasizes the problems that have caused the staggering accident rate that claims 100 Americans a day, 700 per week, and 38,000 per year and gives constructive safe driving procedures that will help alleviate the situation. These problems are divided into three major areas of discussion; the car, the roadway, and the driver. Each film in the series is 30 minutes in length and sells for \$1.25. Preview and purchase information may be obtained by writing to the NET Film Service, Indiana University, Bloomington, Indiana.

A CIVICS AND CITIZENSHIP TEST

Charles L. Peltier of Newton (Massachusetts) High School and Junior College, and Walter N. Durost, Director of Educational Services in Pinellas County, Florida, are the authors of a test entitled *Peltier-Durost Civics and Citizenship Test* published by the World Book Company, Yonkers-on-Hudson, New York. Sold in packages of 35, each test package contains a *Manual of Directions*, *Expectancy Chart*, *Key*, and *Class Record*. These tests are sold in packages of 35 at \$3.80 (net) per package. Machine-scoreable answer sheets are also available at \$1.40 (net) for a package of 35. In addition to measuring

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SCHOLARSHIP NEWS SERVICE

The Bellman Publishing Company, P. O. Box 172, Cambridge 38, Mass., has been collecting and disseminating information on scholarships, fellowships, and loans to colleges and universities for a number of years. In addition to a number of books, the service includes periodical releases (at least 4 issues per year) to its subscribers. For \$20 per year, the subscriber receives all issues of *News Service*, an annual index, and a binder for the issues; for \$15 more, the subscriber receives in addition a choice of 15 publications, and, upon request, two Scholarship Search Problems and a technical report. The November 1959 issue of *News Service* was devoted to information about funds and foundations. The next issue will contain information on college scholarship handbooks, college and high-school financial aids, and awards at the graduate level.

THE APGA PLACEMENT SERVICE

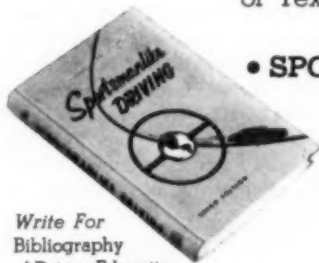
The American Personnel and Guidance Association maintains a Placement Service for members and employers. It functions as a clearing house for members of APGA who are seeking employment opportunities and for employers who have positions to fill. Vacancies which employers wish to publicize are described in the *Placement Bulletin*. In addition, members of APGA who are looking for new positions in guidance and personnel work use it to describe their qualifications. Subscriptions for employers are free. The subscription for APGA member-candidates is only \$2 for a twelve-month period. Descriptions of candidates' qualifications are published under a Bulletin Box Number if desired and can appear in two issues without additional charge. Application forms for listing are sent to members on request. Letters of application for positions listed in the *Bulletin* are forwarded to employers. One page résumés supplied by candidates are duplicated at APGA Headquarters and sent to employers on request. Their résumés are kept on file until the expiration of the subscription or until the candidate has accepted a position.

A Placement Center is operated for APGA members and employers in attendance at the annual convention of APGA. This year the Convention Placement center will be in Hotel Sylvania, Philadelphia, Pennsylvania, April 11-14, 1960. Here candidates consult descriptions of employment opportunities, and employers review the records of applicants. Facilities are available for interviews at the Convention Placement Center. Employers who do not expect to attend the convention may list positions and indicate to whom a candidate may apply. The APGA Placement Service is the general responsibility of the Placement Committee. The Chairman for 1959-60 is Dr. Alva C. Cooper, Placement Director, Hunter College, 695 Park Avenue, New York 21, New York. Any inquiries about the Placement Service, request for forms, or other desired in-

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formation should be addressed to: Carl McDaniels, Professional Specialist, APGA Placement Service, 1605 New Hampshire Avenue, N. W., Washington 9, D. C.

COLLEGE FRESHMEN ARE BETTER PREPARED

Prof. David R. Opperman, assistant dean of the College of Engineering believes that freshmen entering engineering at the University of Illinois are showing increasingly better high-school preparation and scholarship. He states that high-school preparation offered by the great majority of freshmen exceeds that required by the college for admission. A comparison of 1954 and 1958 freshmen shows better preparation of the more recent entrants. "The trend is toward study of a greater number of academic subjects in high school," he said, and reported 90 per cent of the 1958 freshmen offered more than the minimum 15 high-school credit units required for University entrance, almost two-thirds presented 17 or more units, and a few 20 or more. Quality of new students also is increasing. Although engineering freshmen at Illinois increased from 694 in 1945 to 872 in 1958, the number from the upper 20 per cent of their high-school class rose from 41 to 50 per cent, and those from the lower half dropped from 19 to 13 per cent.

SOVIET COMPARATIVE EDUCATION SEMINAR AND FIELD STUDY

The Trade Union of Educational and Scientific Workers of the USSR has once again invited the Comparative Education Society to participate in a field study and seminar planned and directed by the Trade Union for American educators. In 1958, seventy-one professors participated in a five-week series of conferences throughout the Union. This was not a tour. Rather it was an intensive firsthand study of Soviet education. In 1960, however, the emphasis will be upon the changes which have been introduced as a result of the reforms of 1959-60. The dates have been tentatively set for August 14 to September 17. The Soviet schools open on September 1. Hence, there will be many opportunities to visit classes.

The cost of participation in the program is expected to be about \$1700. This will include all expenses within the Soviet Union, trans-atlantic transportation of economy class but tourist in Europe and firstclass in the Soviet Union. The Society and Phi Delta Kappa invites all interested persons to send their inquiries to Dr. Gerald H. Read, Secretary-Treasurer, Comparative Education Society, Kent State University, Kent, Ohio.

EDUCATION FOR THE HANDICAPPED BY TELEPHONE

A group of more than twenty handicapped university graduates and college students who have received all part of their education by telephone have organized a national committee to help further the teaching of home-bound and hospitalized students by the school-to-home telephone method. Some are lawyers, teachers, insurance brokers, and office workers who have proved that physical disability is no bar to higher education and successful careers. The committee, Education for the Handicapped by Telephone, with headquarters at 415 Lexington Ave., in New York, offers their assistance to college officials and shut-in students who cannot attend school in person, but want to continue their education. Their objective is to persuade other schools and colleges to provide similar educational opportunities to other shut-in students.

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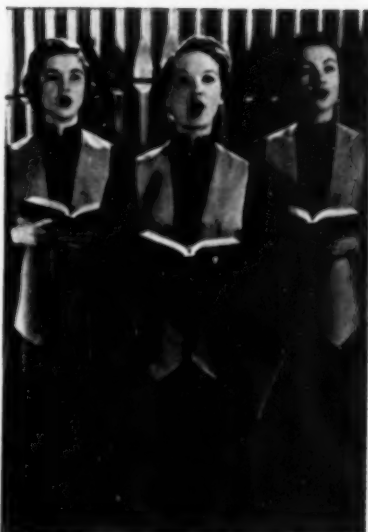
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